S. HRG. 101-210

THE STATUS OF WATER QUALITY IN LAKE CHAMPLAIN

HEARING

BEFORE THE

SUBCOMMITTEE ON
WATER RESOURCES, TRANSPORTATION, AND
INFRASTRUCTURE

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

JUNE 28, 1989—BURLINGTON, VT AND PLATTSBURGH, NY

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THE STATUS OF WATER QUALITY IN LAKE CHAMPLAIN

WEDNESDAY, JUNE 28, 1989

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON WATER RESOURCES,
TRANSPORTATION, AND INFRASTRUCTURE,
Burlington, VT.

The subcommittee met, pursuant to notice, at 9:30 a.m., in the Fleming Museum Auditorium, University of Vermont, Hon. Daniel Patrick Moynihan (chairman of the subcommittee) presiding.

Present: Senators Moynihan and Jeffords.

OPENING STATEMENT OF HON. DANIEL PATRICK MOYNIHAN, U.S. SENATOR FROM THE STATE OF NEW YORK

Senator MOYNIHAN. Good morning. I am your neighbor, Senator Moynihan, from across the lake. I am here with my friend and esteemed colleague, Senator Jeffords, who asked that the Subcommittee on Water Resources, Transportation, and Infrastructure come to Burlington to hold this hearing on water quality in Lake Champlain. This is a subject which we share. I suppose Quebec shares the Lake as well.

I hope we will learn from our three panels this morning that the condition of the lake is essentially good and our principal task is to keep it that way, working on the edges where there are some problems, about which our witness will know a great deal more than I concerning this side of the lake. No one will know more than my distinguished friend who asked that this hearing be held. This is an official hearing of the Subcommittee on Water Resources of the United States Senate.

Senator Jeffords, I have the discretion to turn this hearing over to you, sir. These are your neighbors, our neighbors—I will hand you the gavel and will listen with great attention.

OPENING STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator JEFFORDS [assuming Chair]. Thank you, Senator. It's a deep pleasure to have you here. I sincerely hope that our knowledge will benefit by having this hearing. We will be here this morning and over in your State of New York, which has the great benefit of looking at Vermont. We are pleased to be able to participate in that hearing.

Just before I make a brief statement, I want to point out that we do have a very busy morning. We have a number of very fine witnesses which will be very helpful to us with respect to the information on Lake Champlain, so we are going to have to adhere to a tight time schedule.

First of all, there are the statements of Senator Leahy and Representative Peter Smith which will be made a part of the record.

[The statements appear at pp. 5 and 8.]

Senator MOYNIHAN. Senator Leahy is away with the Agriculture Department in other parts of the country.

Senator JEFFORDS. I know he would have liked to be here, but unfortunately he does have another commitment.

We have three outstanding panels this morning and only two hours, so we are going to have to move very expeditiously to handle all the matters that are before us.

The purpose of today's hearing is to assess the water quality of Lake Champlain, the sources of pollution that are of concern, and appropriate measures that should be taken to assure continued health of the lake.

Lake Champlain is a valuable natural resource that is most deserving of Congressional attention. In the past, the lake has been a prominent commercial transportation corridor used to haul timber, ice, and even granite over the years. More recently the lake has served as host of increasing recreational uses, as demonstrated by the number of boats on Lake Champlain during the annual fishing derby. It has served as a substantial fishing resource for the area since the beginning of time. Lake Champlain continues to supply a significant portion of the drinking water also to residents and communities along the shoreline, and in simplest terms, it's a darn nice thing to look at and we enjoy it.

How future generations will use the lake is largely a function of how we decide to care for it during our lifetimes. Lake Champlain is experiencing a period of accelerated growth and change. More people are choosing to live year-round along the lake and its tributaries. Boat traffic is on the rise and with it, a demand for more marine services.

Diverse industrial growth and various agricultural policies can affect the water quality of the lake. Rising populations and persistent air pollution problems have a cumulative effect, contributing to a decline in water quality in ways that are difficult to quantify. Sediment accumulation poses threats that experts are only beginning to comprehend.

The recent designation of the Lake Champlain/Adirondack Region as a Biosphere Reserve underscores the importance of the basin area. Because of the political boundaries that have nothing to do with natural processes, it is imperative that the governing bodies of Vermont, New York, and Quebec work collectively to address the various issues affecting water quality. The Memorandum of Understanding signed by Governors Kunin, Cuomo, and Premier Bourassa is an important step towards further constructive agreements.

We have split the hearing today between Burlington and Plattsburgh in order to get a comprehensive overview from the neighboring States. Perhaps a future hearing involving Quebec is warrant-

ed, but I am sure we will gather enough suggestions today to keep us busy for awhile.

The water molecules in the lake are not the same as those when the Iroquois and Algonquins worked the shores. They are different than those which supported Ethan Allen as he crossed to take Fort Ticonderoga. These are different still, than those which inundated the lake during the purge of the 1927 flood.

Today we have a Lake Champlain that is many ways different than it was when first seen by the explorer whose name it bears. We have years of experience learning its wonders, and it in turn has witnessed the effects of our "progressive" habits.

The overall water quality of Lake Champlain remains good, but this will not continue to be the case if we simply retain our status quo practices. With luck, we will not see catastrophic events poison the lake, but without incorporating prudent measures we may see a gradual demise equally potent.

In the 1970s, Vermont went to the United States Supreme Court and obtained better standards to protect against industrial pollution. We must monitor this agreement and ensure compliance.

We are already witnessing an accumulation of PCBs in lake trout. Sport fishing is tremendously popular in Lake Champlain. It is imperative that we better understand the probable sources of PCBs and other toxics in order to reverse this trend and prevent these poisons from infesting others of the lake's 80 fishing species.

Last summer's headlines announced beach closings due to inadequate sewage treatment and stormwater overflow. Eutrophication within the lake from persistent phosphorus loading and from sediments is a continuing problem. The invasion of pest plants like Eurasian Milfoil and Water Chestnuts deserves additional attention. We need to get a handle on airborne pollutants to better assess their impact and reduce their volume.

Today's witnesses are here to relate their observations and suggestions. I am pleased to join Senator Moynihan, the senior Senator from New York and Chairman of the Subcommittee on Water Resources, to benefit from the expert testimony.

Senator MOYNIHAN. Senator, before you call the witnesses—you mentioned the role of the lake as a transportation route. This is 1989 and it's the 200th anniversary of the French Revolution which was a not inconsiderable event. I don't know if the French know this, but before the 14th of July, which is Bastille Day, somebody should record for them, at least in Canada and Quebec, that it all began down just south of the lake here.

There is a space of just seven miles between Fort Edwards on the Hudson River and Lake George, which is the only land bridge connecting Vermont, New England, and Quebec to the mainland United States, you might say. Other than that, you can take a canoe from New York Harbor to Quebec City.

So all the great wars fought up and down this area—you get a sense of what water meant. In the last three weeks before the Battle of Saratoga where Goings Army had managed to travel 20 miles, one mile a day. After the defeat at Saratoga, which was the first time the British Army had ever been defeated, we sent our fast horse to Boston and a fast ship to La Perade, couriers to Paris.

Benjamin Franklin was told about this and he brought the news to Louis XVI, who two days later recognized the American Republic. He then proceeded to borrow a fortune to pay for the American Revolutionary War, such that in 1789 they were almost bankrupt. More than half their budget was used to pay interest on the debt accumulated during the American Revolution.

The only thing he could do was to convene the Estates General, which had not been done since 1620. They had lost touch with the old ways, and within three years time, had cut his head off. That shows what comes from being generous to foreign persons of which you know little.

In any event, we want to express our appreciation to Louis XVI.

Senator JEFFORDS. Thank you very much, Senator. That's very interesting.

[The statements previously referred to follow:]

STATEMENT FOR THE RECORD
of
SENATOR PATRICK J. LEAHY
before the
SUBCOMMITTEE ON WATER RESOURCES, TRANSPORTATION,
AND INFRASTRUCTURE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
on
WATER QUALITY AND RELATED ISSUES PERTAINING
TO LAKE CHAMPLAIN

JUNE 28, 1989

Mr. Chairman and members of the Subcommittee, I am delighted with your decision to hold these hearings on Lake Champlain, a valuable natural resource of utmost importance to the citizens of New York and Vermont.

I deeply regret my inability to attend these hearings. However, I have been asked to serve as an a member of the Senate strategic arms control observer group in Geneva, Switzerland.

Lake Champlain, and the rest of our environment, is struggling with many challenges including development, increasing recreational use, and point and non-point source pollution. The degradation of a lake is not as immediately noticeable as an oil spill or massive die-off of fish. Rather, it takes place over several years as stresses on the ecosystem increase. We are now seeing the various clues which should indicate that the time to save our lake is now.

Recreation is a significant stress on the lake. Lake Champlain is easily accessible to people who live in three major cities: Burlington, Plattsburg, and Montreal. On our side, Chittenden County is one of the most rapidly growing areas in the country. Several recreational patterns underline the steadily increasing demands Lake Champlain encounters yearly.

In 1988, over 36,000 boats were registered in the state of Vermont alone. It is safe to say that a large percentage of these boats end up on Lake Champlain.

The number of swimmers, boaters, sailboarders, and other users is higher than ever in the history of the lake. These numbers correspond directly with the population growth of

areas surrounding the lake. Residents and representatives of the lakeshore communities have stated that lake access can not keep up with ever increasing demand.

Non-point sources are a continuous threat to the lake. Runoff from some agricultural operations have been a source of phosphorus loading into the lake. The State Soil Conservation Service and the entire Vermont agriculture community have been committed to finding solutions to this problem for several years. Moreover, we have implemented a successful program for rechannelling runoff with high farm participation.

All of Vermont's natural resources have been suffering from air pollution. This pollution led to increased acid levels in our lake, and other problems which are only now coming to light. We need more monitoring and research to begin to address the causes and develop the remedies for these problems.

Point sources are another problem. Presently, there are several municipal wastewater treatment facilities and a major paper mill with a direct impact on the lake. We must continue to assure that every effort is being made by these industries to safeguard the lake's ecosystem.

I have long been a supporter of the Lake Champlain clean up efforts. In recent years, I successfully helped push for an International Biosphere Reserve designation of the Lake, which was granted this year. After a two-year effort, I successfully helped obtain funding for a cooperative research agreement between the Fish and Wildlife Service, the State of Vermont, and the University of Vermont. The coop will enhance current fisheries efforts at the School of Natural Resources. Finally, I take pride in the fact that my support of the Rural Clean Water Program.

Mr. Chairman, New York and Vermont share Lake Champlain with the Canadian province of Quebec. This affords a unique opportunity to bring our states together on an aggressive clean up effort. In many ways we have already begun. New York, Vermont and Quebec have entered into an agreement pledging to take steps to protect Lake Champlain.

In addition to the Water Resources Subcommittee which you chair, Senator Moynihan, and on which my distinguished colleague Senator Jeffords sits, members of our congressional delegations sit on the Appropriations and Agriculture Committees. Together we can develop a comprehensive monitoring, research, and protection effort for Lake Champlain. I pledge my strong support for an effort of this type, both in my functions as Chairman of the Agriculture Committee and a member of the Appropriations Committee, and as a concerned citizen of Vermont.

Many of us who care about our Lake have been working together to develop a comprehensive program mentioned above. We are hopeful our program will include provision to monitor Lake Champlain use, pollution impacts, and future protection management strategies.

I look forward to working cooperatively with the members of the New York and Vermont delegations. I am encouraged by the degree of interest and cooperation there has been on this issue between our two states. This is not a partisan issue. It is one which unites the three of us, as Vermonters and as a New York Senator, in a long term environmental interest - an interest we have demonstrated for decades.

Thank you for this opportunity to present my views.

ON THE FUTURE OF LAKE CHAMPLAIN
Committee on Environment and Public Works
Subcommittee on Water Resources, Transportation, and Infrastructure

Congressman Peter Smith
June 28, 1989

Communication and coordination: we open our only path toward a reduction of nonpoint source pollution in the Lake Champlain Basin with careful cooperation between the States of Vermont and New York and the Province of Quebec. Vermont and New York are developing State Nonpoint Source Management Programs under the 1987 amendments to the Federal Clean Water Act. But more coordinated research and clear identification of long and short-term objectives are necessary to ensure informed decisions regarding our shared responsibility in the management of the Lake Champlain Basin.

You and I have enjoyed the great beauty of our Lake our whole lives. But in recent years, several different forms of pollution have begun to threaten its health, and challenge our ability to form responses coordinated from all sides:

1. Managing Lake Champlain to prevent excessive eutrophication must be one of our goals. Heavy phosphorus loads accelerate the normal aquatic growth process in the Lake, and create an oxygen deficiency which has repercussions throughout the basin's ecosystem. Nonpoint sources, such as runoff from agricultural, forest, urban, industrial, stormwater, and other land sources account for about 52 percent of the Lake's phosphorus cycle. We must find and immediately establish management controls to relieve the stress that this pollution is placing on the Lake.

2. Sediment erosion, by weight, may be the largest single source polluting Lake Champlain. The Level B Study, completed by the New England River Basins Commission in 1979, listed the practices that most contributed to the erosion forces as: intensive cropping on slopes exceeding three to five percent, construction activity in developing areas, logging practices, stream-bank and road-bank erosion, and intensively used recreation areas. To retard the sediment erosion process, we must decrease the amount and intensity of such activities and install better management practices.

3. Lake Champlain is also contaminated with toxic materials, primarily trace metals and synthetic organic compounds. Municipal and industrial discharges, and urban and agricultural pesticide usage all contribute to this pollution. What long-term effects these toxic materials will have on the ecosystem has not been fully determined.

But the most important element in our work to shape and better manage the future of Lake Champlain is communication: between New York and Vermont, and across the border to Quebec. We must establisn and maintain a strong exchange of information, increasing our collection of data and researching all the possible remedies for the many problems we face. In doing so, we increase our understanding of water quality relationships, and long-term trends. We may then address the urgent problem of nonpoint source pollution in a coordinated, comprehensive, and effective manner.

Toward that goal, I have begun talks aimed at forming a new

Lake Champlain Caucus, to include each member of Congress whose district borders the Lake. The aim of this caucus will be to coordinate federal programs, to identify new funding sources, and to move forward program activities without unnecessary delay. We all share a common passion to protect that part of our heritage contained in these waters, and on these shores. It's our history, and our great source of pride in a wondrous natural resource. Now is the time when our Lake needs us the most. Let's begin to look at new ways of coordinating management throughout the Champlain community, ignoring state and national lines. Let's continue this campaign on all levels, from grassroots to the national government of two nations, to save these waters for all of our children to enjoy.

Senator JEFFORDS. Our first witness is Nancy Bazilchuk, the Executive Director of Vermont Agency of Natural Resources. She has a very interesting testimony.

Please come up, Nancy, and I also would ask the other members of Panel 1 to join Nancy—Timothy Burke and Ron Allbee, would you also come up, please.

It's a pleasure to have you here. I have read your testimony and I think it will be very helpful to us.

To me, these are extremely important hearings. I am deeply interested, as I have been over the years, in Lake Champlain as a resource and where we are going and how we are going to deal with its problems.

Go right ahead, Nancy, and proceed.

STATEMENT OF NANCY BAZILCHUK, EXECUTIVE ASSISTANT TO THE SECRETARY, VERMONT AGENCY OF NATURAL RESOURCES

Ms. BAZILCHUK. I am here on behalf of the Vermont Agency of Natural Resources, which is our umbrella agency that oversees the activities of the Department of Environmental Conservation of which Tim Burke is the Commissioner, the Department of Fish and Wildlife, and the Department of Forests, Parks, and Recreation. I am here as a spokesman for the agency, but I guess I would like to think that I am here as a spokesman for the lake as well.

I think it is pretty safe to say that everyone in the audience today is glad to see both of you here, taking an interest in the lake. We have been working hard in New York and Vermont to do good things for the lake and we are eager to see good things happen to the lake.

The lake is quite beautiful. It has survived for some time, for several centuries, despite our best efforts to destroy it. We have logged its hillsides, dammed its tributaries, and pumped sewage into its bays, yet it is still quite a beautiful jewel out there. In fact, as you were saying, Senator Jeffords, people still drink the water, fish and swim in Lake Champlain.

We are very lucky. The area is not that developed, even though we are within a day's drive of 65 million people according to the Census people. It is still relatively undeveloped. In fact I would like to tell a story about former Senator George Aiken and Lyndon Johnson, who came up here about a quarter of a century ago now.

George Aiken was taking Lyndon Johnson on an aerial tour of Lake Champlain. Unfortunately I can't do a Texas accent so you have to forgive me. As they were flying over Lake Champlain, Lyndon Johnson said to Senator Aiken, "Boy, if Texas had this piece of property, things would really be humming." Well, I never had the pleasure of meeting Senator Aiken, but I am sure he thought to himself, "It's probably just as well that New York, Vermont, and Quebec have Lake Champlain, rather than Texas since we like the lake the way it is.

If you live here now and read the papers, you realize that, in fact, things are starting to hum in the Lake Champlain Basin. Development is very, very much an issue here. I think we are in a position now to respond to the pressures that development places

on the Lake Champlain Basin. I see your visit today as recognition of our ability to do things.

We in Vermont and New York are able to coexist with the lake. I say that and I have the backup of the U.N. in saying that.

Senator MOYNIHAN. Not the U.N.—UNESCO.

Ms. BAZILCHUK. The United Nations Man in the Biosphere Program, true—recognized the Lake Champlain Biosphere Reserve. In terms of an international reserve, that is the fourth largest in the world. That designation, as well as State efforts that I will talk about, puts us in a very unique situation to turn efforts on Lake Champlain into a national model for environmental management and protection.

Nationally, I think, we can take pride in the leadership that out country has had and shown in cleaning up large water bodies. We have acted responsibly to establish programs for the Great Lakes, for big estuaries like Chesapeake Bay, Narragansett Bay, and so on.

In Lake Champlain, I think we have the opportunity as a country to take a step beyond those efforts, to go beyond cleaning up past mistakes. Here we are in a unique position to protect a world-class body of water from further degradation.

You asked us today what we thought the problems were for Lake Champlain and what we thought the solutions were. I think you will hear quite a bit about the individual problems.

What I think the Agency of Natural Resources sees as a solution to all these problems would be in some way, whether by making Lake Champlain a Great Lake so that it can receive funding from the EPA, or in some way changing the Clean Water Act, I think we would like to see a Lake Champlain program established, much like has been established for the Great Lakes, for Narragansett Bay, for Chesapeake Bay, for all these world-class bodies of water that have seen protection. We would like to see Lake Champlain get similar consideration.

I say that knowing that it is a tight time in Washington, it is a tight time in Vermont, as far as money goes. I say that because I know many of the pieces are already here in Vermont and New York and Quebec. We have been busy, knowing that you were going to come, and we have been busy in general in the two States and in the Province of Quebec.

As you mentioned earlier, my Governor Madelein Kunin, Gov. Mario Cuomo of New York, and Premier Robert Bourassa of Quebec last year signed a Memorandum of Understanding. That was designed to promote cooperative management of Lake Champlain. As part of the agreement, our staff from the two States put together a work plan that outlined our major program needs for the lake.

I would like to introduce that as I have as part of the written testimony. I believe you all have a copy and there are copies outside.

What I would like to leave with you is the idea that we are trying to do everything here in Vermont that we can with the limited State money we have. In large part, we rely on the help of people who love the lake. For example, we have a volunteer lay-monitoring program.

These are volunteers who go out once each week to 31 different stations around Lake Champlain and collect water samples for us which we analyze for phosphorus and for chlorophyll A. They do transparency measurements also. We have also got a phosphorus budget study underway, which Tim Burke will talk a little bit about, and some of our staff here can answer specific questions about that.

We have bits and pieces but despite that, there are still so many things we just do not know about the lake. We do know, to some degree, what goes into the lake from things like wastewater treatment plants and industrial discharges. We know some of the pollutants come in from airborne particles, and in some cases, as we mentioned earlier, we know where some of these pollutants go.

For example, we know that the nice big fat 25-inch lake trout that you can catch on Lake Champlain—those fish store PCBs. So you can catch those, but our Vermont and New York Health Departments suggest that if you catch fish over 25 inches long, you should not eat them. We know that because we as a State sample fish tissue, but we sample it only every five years on Lake Champlain. That sampling frequency is dictated by budgetary constraints.

New York has a bit more aggressive sampling program. They sample biannually, but they sample from only four stations on the lake.

I know that part of why you are here is to talk about best management practices for agricultural runoff. There has been significant Federal attention to those programs. There is Federal funding for some of those programs, but in Vermont, for Lake Champlain, we have virtually no Federal funding for any sort of toxics monitoring on Lake Champlain.

We do not know where these pollutants come from. We can guess, but we do not know. We also do not know how they affect the lake's ecosystem. I think it is a sad commentary to say that the best management practice for toxics on Lake Champlain is to tell people not to eat the fish.

An EPA Lake Champlain program, much like one for the Great Lakes, Narragansett Bay, or Chesapeake Bay, in addition to pulling together all these existing efforts, could help us with baseline monitoring for toxics, metals, and other nutrients. Such a program would include air monitoring, bioassays, and sampling lake sediments.

In addition to encouraging Congress and the EPA to sponsor such a Lake Champlain program, I think there are other places where their joint efforts could help very much. I know that Tim Burke from our Department of Environmental Conservation and Commissioner Allbee from the Department of Agriculture will talk more specifically about control of non- point source pollution, so I will not go into detail on that. I will add my voice to theirs to say that I strongly recommend that you find funds for what is called the 319 Program.

From the Vermont perspective, Lake Champlain is absolutely critical in any kind of non-point or point source management program. The lake receives point and non-point discharges from

nearly half of the State's land area and from 60 percent of the State's population.

In my written testimony, I suggest other ways that you can help us with weed harvesting and land acquisition. I was very heartened, Senator Jeffords, to hear you mention those things today.

In summary, I would like to congratulate you both for taking this time and paying attention to Lake Champlain and having the vision to ask the question, "What needs doing on the lake?" I think we are very much at a critical time here, where we can do something splendid for this beautiful lake—a lake that richly deserves our help. Thank you.

Senator JEFFORDS. Thank you very much.

Ron, you're next.

STATEMENT OF HON. RONALD ALLBEE, COMMISSIONER, VERMONT DEPARTMENT OF AGRICULTURE

Mr. ALLBEE. My name is Ron Allbee and I am Commissioner of Agriculture for the State of Vermont.

I would like to thank both you, Senator Jeffords, and Senator Moynihan for coming. We recognize the historic, if you want, work that Senator Jeffords has done on the lake. As Attorney General, you were very instrumental in a landmark case that paved the way for ensuring that the lake was a better lake today. It is, and we thank you for that, Senator.

I want to begin by discussing the non-point source pollution issue. In the mid-seventies Vermont took, I think, a leadership position on what was then called the 208 Program. I was honored at the time to serve as Chairman of the 209 Committee that reviewed the program needs for Lake Champlain.

Vermont was the first in the nation to identify the St. Albans Bay area as a priority area for funding. In fact, we were the first in the nation to receive funding to address the non-point source pollution issue.

I understand that thus far, $1.6 million has been used for cost sharing to help farmers address non-point source problems. That has been done with ASCS, SCS, the State Extension Service, and not the least of all, the farmers.

I think at the time, the farmers recognized that certainly agricultural is not a benign activity. It certainly continues to be a non-benign activity affecting the lake.

I remember going to Addison County at the time to explain the program in terms of what farmers would receive, and telling them that they were not the number one priority, but the number two priority for addressing the problem. A farmer in Addison County said, "Well, Commissioner, how many loads of manure do we have to dump into the creek to become number one?" He was looking for his assistance, but we have made strides.

I understand that in the area of St. Albans Bay that 61 of 102 farms have entered into contracts and that 76 percent of the critical area within the watershed has been addressed with best management plans. I think that is a credit to both the service, Soil Conservation Service, the farmers, the Federal Government, and the State Government.

In 1988, a water quality assessment report found that 85 percent of agriculture's contribution to the non-point source problem was treatable. Of that, 42 percent came from field spread manure; 26 percent from barnyard waste; 13 percent from soil erosion and 5 percent from stacked manure. I think the critical part is that 85 percent is treatable with best management practices.

Those finding are consistent with the groundwater monitoring efforts conducted by the Department of Agriculture going back three years. We have sampled 330 Vermont wells since 1986 in what I would call agricultural areas. We were looking for the problem, if you will.

We found that 47 percent of those wells had detectable levels of nitrates; that 9 percent of those wells exceeded the safe drinking water level of 10 parts per million. We recognize that nitrates continue to be a problem for our waters in the State of Vermont.

I recognize that best management plans are the preferable method of controlling the problem that we have. In fact, if you look at the proposed environmental and agricultural crop programs at the national level, they are emphasizing best management plans or practices for farmers. I think we have to recognize that if those plans are to succeed—and they do succeed by the history that we have had—that cost sharing both at the Federal and State level is necessary to encourage the farmers to participate.

In Vermont, both the Forestry and Agricultural Departments have adopted acceptable agricultural practices. Those practices are guidelines, minimal recommendations as to what farmers and loggers should or should not do on their land to avoid prosecution. Again, we recognize that they are not sufficient if we are to address the problem.

Presently, we have 1,950 of the 3,000 farms in Vermont that kept livestock without best management plans. We would certainly like to see 3,000 farms with best management plans.

I do want to say that the program has been successful. St. Albans Bay, I understand, has improved. They are now not complaining on an annual basis about the State park. People are swimming up there. There is less treatment for the water that is being used for drinking. There have been improvements, but there is much to be done. We recognize that. Thank you.

Senator JEFFORDS. Thank you very much, Commissioner. We appreciate your testimony.

Our next witness is Commissioner Tim Burke with the Department of Environmental Conservation.

STATEMENT OF HON. TIMOTHY J. BURKE, COMMISSIONER, DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Mr. BURKE. Good morning. I am Tim Burke, Commissioner of the Department of Environmental Conservation. I would like to begin by saying how much we appreciate your coming here today to take about nonpoint source pollution in the Lake Champlain Basin.

I want to begin by giving you a rundown of some of the achievements that we have made in our efforts to maintain and enhance water quality in Lake Champlain. The projects that I will describe to you represent a commitment on the part of Vermonters on the

local and State level, as well as the commitment of Federal dollars to these projects.

All of our sewage treatment plants in the basin now have secondary treatment. In addition to that, the communities of St. Albans, Alburg, and Essex are doing phosphorus removal at the treatment plants. The sewage plants in Winooski, Shelburne, South Burlington, and Burlington's three sewage plants are all in the process of upgrading to do that phosphorus removal.

We are now moving into the combined sewer overflow projects beginning with a $52 million project for the City of Burlington. In the LaPlatte River, St. Albans Bay, Dead Creek, and Lower Winooski areas, we have used the cost sharing mentioned by Commissioner Allbee to upgrade agricultural practices and install newer management systems.

As a follow-up to that work, we have two 566 studies underway in the LaPlatte River and the St. Albans Bay area. These are 10-year studies that will follow up those changes in practices to determine the effects of those upgraded farm practices.

In aquatic nuisance control we have spent $1.4 million over the past seven years to stop the advance of water chestnuts. That is a war that we are winning. We have driven them back to Benson's Landing and we have hopes of continuing the program and eradicating the plants from the lake.

Senator MOYNIHAN. Sounds like the French and Indian War.

Mr. BURKE. In addition, we have used $500,000 which came from the International Paper Company Settlement in the seventies for various lake projects.

In 1988 we produce a Non-Point Source Assessment Report which was done by my department. It shows that nonpoint source pollution problems have occurred in all of our 17 major river basins in the State and that nonpoint source pollution is responsible for the majority of situations where the use of rivers is impaired. The Lake Champlain Basin contains 68 percent of the river miles that were identified as impaired.

The major causes of the lake impairments are siltation and turbidity, nutrients—particulary phosphorus—stream destabilization, and flow alteration. Most of these causes do result in phosphorus accumulation and therefore, eutrophication of Lake Champlain. Lake Champlain still supports good quality recreation and natural habitat in many areas, but there are eutrophic conditions and associated water quality problems in some of the bays in the South Lake area.

Approximately 13 percent of the lake's 174,000 acres in Vermont are considered impaired or partially impaired according to the State Water Quality Standards. These impairments are caused by excessive weeds, excessive algae growth, or siltation.

We completed a lake user survey—what we were trying to find out was people's impressions of the water quality and at what level of phosphorus they felt that use of the lake was impaired. We discovered that if phosphorus concentrations in the mean summer total was kept to 0.014 milirams per liter, then virtually no users would perceive high algae levels for more than two percent of the time. Unfortunately, most of Lake Champlain does exceed this

phosphorus concentration. There is a map included in the written testimony I have given you that shows those areas that exceeded.

Phosphorus is critical because it is the limiting nutrient and its concentration is largely responsible for determining lake water quality. It is essential that we begin reducing that total phosphorus loading to the lake so as to slow or reverse the deterioration of the water quality in the lake.

The States of Vermont and New York are jointly proposing a lake-wide sampling and modeling study to identify the major sources of water quality impairments for both Vermont and New York. The two States have entered into a historic cooperative agreement to address lake issues. The Lake Champlain Comprehensive Eutrophication Management Study is the focal point of this bi-State agreement.

The first step in that is a diagnostic feasibility study to put into place what we need to do for a eutrophication management plan. The study can lead directly into developing the basin-wide phosphorus management study. The study has a total budget of $903,000—$357,000 for the State of New York and $545,000 for Vermont.

Vermont and New York, under section 314 of the Clean Lakes Program, anticipate receiving $100,000 each in fiscal year 1989 funds. Taking into account other sources of funding, a total of $319,000 is still needed to totally fund that study. We are in hope of getting that funding out of section 314 in the fiscal year 1990 budget. We certainly hope that you can help us secure those funds to continue that study.

Once the Lake Champlain study is completed, the various programs available to reduce phosphorus loading to waters can be implemented in a prioritized and cost effective manner. In particular, our Nonpoint Source Management Program, which we completed in 1988 and which has been approved by EPA, sets forth our program and budget needs to address the various sources of non-point source pollution, taking into account all of the Federal, State, and private programs. Lakes and rivers have been targeted for restoration under this program and appropriate programs have been identified and proposed.

The cost of implementing the Nonpoint Source Management Program state-wide is estimated at $31.8 million the first year, increasing to $41.7 by the third year. Taking into account all of the existing funding, we are coming up with an $11.8 million gap unfunded, and that increases to $21.7 million by year three. Federal funding is currently unavailable under section 319, so we would encourage you to look at alternative means of trying to help us find implementation of those non-point source controls.

One suggestion we would ask you to consider is one mentioned by Nancy—that is the funding authority to be sought under the Great Lakes Commission, not only because of the similarity of the projects that we contemplate, but also because of the importance of Lake Champlain as the Great Lake of the Northeast.

I would like to comment also on the recommendation of both this Administration and the previous Administration to cut funding for the construction grants program. It is our understanding that an agreement had been reached to phase out that program over an

eight-year period, giving the States authority to convert to a revolving loan fund.

Based upon the agreed upon levels, Vermont has made major commitments to the combined sewer overflow projects which are needed in the State. We understand that Congress has moved to increase President Bush's budget request for this program back to the agreed upon $2 billion level, and we certainly applaud your efforts in trying to guarantee adequate funding for that program.

I would hope that you would leave here today with the knowledge that the State of Vermont is committed to protecting and enhancing the water quality of Lake Champlain, that we are willing to commit what financial resources we have to that effort, and that we need your assistance in securing the Federal share of the monies required to protect the quality of this important national resource.

I have three of our staff members here to respond to your questions—Dave Clough, Eric Smeltzer, and Rick Hopkins. Thank you.

Senator JEFFORDS. Thank you for that very excellent testimony.

I would first like to get some information: what do we have for baselines on the water quality? How far back do you go and what kind of new data do you have?

Mr. BURKE. Dave, would you like to respond to that?

Mr. CLOUGH. It varies depending on what kinds of parameters you want to talk about. There is a lot of basic research done on certain types of ions like phosphorus and magnesium.

Senator JEFFORDS. Take phosphorus, for instance—how pervasive is that baseline study; what year was it done; do we have a real baseline yet, or is that what you are trying to get now?

Mr. CLOUGH. No, I do not think we do. That is exactly why we need to do the phosphorus budget study that we are now proposing—a study that we are currently $319,000 short on—in order to precisely identify what the phosphorus contributions from the main tributaries out of Vermont is, what the nonpoint fraction of that is, and what the resulting concentrations in various parts of the lake are, so that we can begin to understand how to manage phosphorus in the lake and where we need to eliminate some and where we can afford to have some go in.

Without that study, all of the other managerial types of things that we need to do can not be undertaken. The bottom line is: no, we do not really know precisely or any kind of detail, where the phosphorus comes from, what happens to it, how it travels to the lake, and how it cycles through the lake. That is a real crying need that we do have.

Senator JEFFORDS. And we do not know over the course of time what the increase in the phosphorus content in the lake has been to any great degree?

Mr. CLOUGH. Not with any precision. There have been several estimates that were done. There was an EPA study done in the seventies along with some work that we did on certain of our tributaries, but that work was all so cursory that it really does not suffice to do the work that we now think that we need to do.

Senator JEFFORDS. So the discovery of a problem has been primarily from evidence such as algae, slime, and whatever else you want to call it?

Mr. CLOUGH. Exactly—we have simply been going along for the past several years reacting to the symptoms of the phosphorus input and really have not been getting at the root cause. In general, as you know, we have done a fair amount of things that we were able to do.

We got a phosphorus detergent ban enacted in the seventies and that had an immediate 50 percent reduction of phosphorus in sewage. We do have phosphorus removal at several of our treatment plants, and all the rest of them are on the way to that. We are now considering—with a report that is due to the legislature next year—we have to make recommendations regarding phosphorus removal back into the basin in the villages like Montpelier and Barre to see whether or not those cities all also contributing phosphorus and whether it would be worthwhile and meaningful to remove it from those facilities as well. We think it probably is, but if that is the case, it is going to be a big bucks program.

Senator JEFFORDS. Would you just state your name and position for the record, please?

Mr. CLOUGH. My name is David Clough, employed by the Department of Environmental Conservation as Water Quality Division Director.

Senator JEFFORDS. Thank you.

How is this program going to work as far as coordination of these efforts with New York?

Ms. BAZILCHUK. The Lake Champlain Program that I proposed?

Senator JEFFORDS. Yes, and also the taking care of problems with the lack of information on baselines and phosphorus content throughout the lake and the coordination of studies and programs.

Ms. BAZILCHUK. This study for example, the Phosphorus Management Study, is being jointly proposed by Vermont and New York and our people have worked together on that. There is the Memorandum of Understanding and the work being done about how we can put our information together, and we are working out a structure now to make that more formal.

It is important that we talk to each other. We are doing that more and more, but a larger EPA contribution to that by having a coordinating body would help quite a bit.

We have seen it help quite a bit in the Great Lakes where they have done a number of different States and in Canada. We also have Quebec which has something like three percent of the lake's shore area, with about 37 percent of the boats on Lake Champlain. So, they like Lake Champlain, too.

It is critical that we talk to each other. We are trying to do that, but we need more help in doing that.

Senator JEFFORDS. Ron, can you give me an idea of the success of these programs as to what the experience has been of farmers, whether it has been helpful to them from an economic perspective?

Mr. ALLBEE. I can only summarize from the farms I know of. I do not think we have any one report that outlines success or failure. By participation, it has been a success, but also management-wise, we know the structure they put in and the system of management, too, allowing them to apply their nutrients at the best time of the year.

Senator JEFFORDS. Tim, you mentioned the $500,000 fund. Is there any money left in that?

Mr. BURKE. I believe we have spent that money. Some of it was used to match Federal monies, and the rest was used for various staff activities, monitoring, things like that.

Senator MOYNIHAN. Thank you, all three of you. It's nice to have the sort of problems that you can wrap your mind around. Thank you. I've learned a great deal.

I just want to make two points. In Lake Champlain you have the best of all types of problems, which is how to keep something from getting worse, from going bad. You can study and count and measure, but you've got to see the alternatives. We have Lake Onondaga in New York—which may be Hiawatha's lake, or may not be; it was thought to be Hiawatha's lake—but a third of the natural volume of Lake Onondaga is filled with industrial wastes, mercury, God knows what. They just raped it; for 104 years, Allied Chemical Company dumped and dumped, and when there was no room left to dump, they left. We thought of suing them yesterday, but it would probably take 104 years to do that.

I would just say to Commissioner Burke, on the Clean Water Act, I was the floor manager in the Senate on that bill in 1987. It was vetoed, a pocket veto at the end of 1986; then we took it up again, and we passed it in both Houses. We reached an agreement, however, to end the funding; you obviously know that. It would be five years of Federal funding, $2.4 billion each year, and then a revolving fund thereafter.

What was disappointing, as you mentioned, was that the Administration—in the face of what we thought was an agreement at $2.4 billion a year—proposed half, just half.

We have to keep ourselves to that agreement, but we also have to acknowledge that with the general proposition of Federal funds, there's not going to be much. The decision was that the Federal Government didn't have these resources and didn't want to do it in the first place.

So what we do, New York and Vermont, we have to think about doing it on our own. But I would just make the point that we had an agreement.

Senator JEFFORDS. Our next panel consists of the Honorable George E. Little, Chairman, Vermont Senate Natural Resources Committee; John C. Clausen, Research Associate Professor, School of Natural Resources, University of Vermont, who has some very valuable testimony; John Titchner, Vermont Director, Soil Conservation Service; and Jan Jamrog, District Director, Agricultural Stabilization and Conservation Service.

George, it's a pleasure to have you with us this morning. I know you are a leader in preserving Lake Champlain. Your efforts in that regard are certainly to be commended, and we will appreciate hearing from you your views on what can be done by us.

STATEMENT OF HON. GEORGE E. LITTLE, JR., CHAIRMAN, VERMONT SENATE NATURAL RESOURCES COMMITTEE

Mr. LITTLE. Thank you. It is nice to be here and to have all of you here.

I feel very fortunate to have been born and brought up on the shores and surface of the lake and to be lucky enough to have been elected by the voters to represent the Vermont Legislature, which has jurisdiction over the eastern shores of the lake and the western boundaries of New England. It is nice to be here.

My testimony is based on a lifetime spent on the shores of the lake and a lengthy period in the General Assembly, concerned with environmental issues.

There can be no doubt that this lake is a world-class body of water, supplying endless forms of recreation; drinking water; flood control; historic traditions; and spectacular scenery for over 60 million Americans and Canadians, and all this within a few hours' transportation.

Although Lake Champlain has not been damaged like Lake Erie or other Great Lakes, it has nevertheless deteriorated over the past two centuries. In its early history it was a trade artery from north to south, leading to development on its shores which caused industrial and domestic pollution. Because Vermont and northern New York escaped the tremendous population explosion of other areas, the lake was spared to some extent.

Pollution, however, has taken its toll. There are those testifying here today who will have more scientific information on lake deterioration, but as an old "laker" living on Champlain—that's a term kind of like a "woodchuck"—I am saddened by the overdevelopment and the resulting degradation.

Although much has been accomplished in sewage plant construction on the shores and tributaries, very little has been done to decrease pollution from other sources. These include septic system run-off, leaking landfills, storm water run-off, boating emissions, logging sediments, agriculture run-off, air emissions, and several others. In addition, the vast increase in nuisance aquatic weeds which thrive on some of these forms of pollution are now becoming pollution of another kind and are one of the lake's most significant problems.

Vermont has taken a number of important steps in the 1980s to improve the lake. The Vermont Legislature has addressed pristine streams, wetland preservation, indirect sewage discharges, aquatic nuisances, ground water management, storm water run-off, solid waste disposal and septate leaking, an important bill effecting land planning and growth management, and finally, legislation banning CFCs from all automobile air conditioners after 1993. Most, if not all, of these have direct influences on the lake. Another significant step was the signing of the Memorandum of Understanding on Environmental Cooperation between the two States and Quebec.

The message I hope you take with you is that Vermont is doing its share to improve the lake and correct pollution problems. However, if we are to have the full scope and perspective needed to do a proper job, to provide the technical data necessary to evaluate the many factors creating the pollution, we must have a financial commitment by the Federal Government.

Lake Champlain is the sixth-largest fresh water body in the United States. It covers 435 square miles, but in spite of its size it does have a finite biological capacity. Finding this capacity and the best possible information is necessary to help evaluate what

must be done to preserve this precious asset. Democracies make decisions on good information. We need help in gathering it.

Lake Champlain has significance far beyond the borders of Vermont and the Adirondacks. This fact was recently accentuated by the designation of the basin as a Biosphere Reserve. This recognition places it in the same category as other world treasures such as Yellowstone Park in the far west and Serengeti Park in Tanzania, Africa. Lake Champlain is a marvelous asset of our country. It needs support from all who have a vital interest in its future--local, State, and Federal Governments.

Thank you.

Senator JEFFORDS. Thank you.

Mr. Clausen, please proceed. I am very interested in hearing your testimony. I know that the University of Vermont, thank goodness, has spent a great deal of time and effort in trying to make sure we understand what is going on in this basin. We appreciate your efforts.

STATEMENT OF JOHN C. CLAUSEN, RESEARCH ASSOCIATE PROFESSOR, SCHOOL OF NATURAL RESOURCES, UNIVERSITY OF VERMONT

Mr. CLAUSEN. Thank you. My name is John Clausen and I am a Research Associate Professor at the University of Vermont. I would like to thank both Senator Jeffords and Senator Moynihan for the opportunity to testify on issues that are important to me. This is especially important to me since I have had the opportunity, over the last eight years, to study agricultural nonpoint source pollution in the Lake Champlain basin.

I should also mention that agriculture is not the only source of nonpoint source pollution to Lake Champlain. Silviculture, construction activities, and some mining activities are also included, but I will confine my comments to the agricultural arena.

Nonpoint sources are estimated to produce over 80 percent of the phosphorus that goes into Lake Champlain from New York and Vermont. On a national basis, recent information indicates that nonpoint sources are estimated to impact nine times as many lake-acres as do point source discharges. Therefore this is truly an important issue—not only in Vermont and across the Nation, but for our neighbors to the north in Canada.

Today I would like to discuss with you the lessons that we have learned from our studies here in Vermont. We have been conducting several studies since 1978, most notably the St. Albans Bay Project and the LaPlatte River Watershed Project. The St. Albans Bay Watershed Rural Clean Water Project is one of 21 experimental projects in the country. However, it is one of five projects that have very intensive water quality monitoring associated with them. It is a cooperative arrangement among USDA-ASCS and SCS, the State Agency of Natural Resources, the Franklin County Natural Resources Conservation District, the Extension Service, and the University of Vermont. It involves about 100 Vermont farmers located about 35 miles north of here.

The LaPlatte River Watershed Project is a Public Law 83-566 land treatment project, and it is also a cooperative arrangement

among the Soil Conservation Service, the Winooski Natural Resources Conservation District, the Vermont Agency of Natural Resources and, the University of Vermont.

Both of these projects are notably cooperative, and I think we have a reputation of working in a cooperative manner to solve pollution problems.

My goal in these projects is to determine whether agricultural pest management practices improve water quality. I would like to share with you five lessons that we have learned in our studies.

No. 1, many best management practices do improve water quality. We have found that storing animal wastes over the winter and not spreading it on snow and ice will save phosphorus during the snowmelt in spring. We have also discovered that using filter strips to treat waste that comes from milkhouses can reduce sediments and nutrients in that waste by over 90 percent, a remarkable treatment.

No. 2, the quality of streams that drain agricultural areas will not likely meet State water quality standards. I think that not only applies to Vermont but also across the Nation. For example, water samples from one of our agricultural streams exceed the State standard for dissolved oxygen up to half the time. The bacteria standard was exceeded up to three quarters of the time, and the turbidity standard from one quarter to one half of the time. In what we call a "control watershed," where we do not need any best management practices—yet it is still agriculture—we still exceed these State standards. We exceed bacteria standards from 10 percent to 35 percent of the time, for example.

The water quality in that control watershed is probably the best we can expect to achieve, and yet have a sustainable, viable agriculture.

Point number three, the response of our streams to changes in management practices is going to be incredibly slow. We have only recently seen water quality improvements after eight to ten years of monitoring and implementation of best management practices. An exception has been bacteria where we have seen remarkable improvement. The long response time should not be a surprise to us, since agriculture was initiated in these watersheds by such people as the Allens about 200 years ago. We should not expect rejuvenation overnight, as we can see in a sewage treatment plant upgrade.

The fourth point which is another option on why these streams may be acting so slowly is that perhaps more best management practices are needed. I would like to a call for increased watershed demonstrations that can clearly show to the Congress and the public that we can substantially improve water quality and maintain a viable agriculture.

My fifth and last point regards the Water Quality Act of 1987, specifically section 319. Six months from now, a final report is required from the Administrator of the Environmental Protection Agency that will indicate what progress has been made in cleaning up our waters. However, the grants have never been appropriated to implement the provisions of section 319.

In conclusion, if clean waters are a priority in this country, additional resources will be needed.

I would like to thank Senator Jeffords and Senator Moynihan for this opportunity.

Senator JEFFORDS. Thank you.

Mr. Titchner?

STATEMENT OF JOHN TITCHNER, STATE CONSERVATIONIST, SOIL CONSERVATION SERVICE

Mr. TITCHNER. Good morning. I am John Titchner, State Conservationist for the Soil Conservation Service in Vermont. I would like to thank you for this opportunity to appear before you today.

I would like to discuss agricultural nonpoint source initiatives of the Soil Conservation Service, SCS, and describe their implementation in Vermont's Lake Champlain basin. Specifically, I will provide a brief history of the Soil Conservation Service's water quality activities in Vermont, describe our working relationships with other State and Federal agencies, and reflect on the positive response we are experiencing from Vermont farmers. Finally, I will highlight SCS's national focus on water quality and its impact on Vermont.

The Soil Conservation Service is a technical agency in the U.S. Department of Agriculture which provides direct assistance to landowners through local natural resources conservation districts. Our voluntary programs are aimed at reducing erosion, protecting water quality, and promoting good land use.

Water quality gained significance as a component of the Vermont Soil Conservation Service program following State adoption of the 1978 Water Quality Plan for Controlling Agricultural Pollution. The plan identified agriculture as a major contributor to the eutrophication of Lake Champlain.

Soil Conservation Service technical assistance in subsequent studies identified animal waste as the primary pollutant source. To illustrate the magnitude of the problem, consider that the manure produced each year by Vermont dairy cattle, if placed on a football field on the shores of Lake Champlain, would exceed the height of Mt. Mansfield, Vermont's highest mountain. Soil erosion was identified as another significant source. These studies assisted the State in targeting specific watersheds for treatment. Vermont's recently approved State Clean Water Strategy, which was mandated by the 1987 Clean Water Act Amendments, reaffirms these priorities.

In 1979, local natural resources conservation districts and farmers provided the initiative for the development of the first agricultural nonpoint source management projects in the Nation. These have already been mentioned. They are the LaPlatte River Watershed under Public Law 83-566 and the St. Albans Bay Rural Clean Water Project.

These and subsequent projects provide for developing and implementing water quality plans with individual farmers. The primary focus of these plans is to control erosion and to store animal waste for application during the growing season. Plant use of the phosphorus and nitrogen contained in this manure changes a potential pollutant into a valuable fertilizer for agricultural production.

An important feature of both the LaPlatte and the St. Albans Bay projects was the provision for comprehensive monitoring and

evaluation. The Water Resources Research Center at the University of Vermont, as the principal investigator for this monitoring, has gained national prominence for its leadership in agricultural water quality monitoring. The monitoring results have helped us to develop state-of-the-art technology, referred to as "best management practices" for agriculture.

Monitoring has also revealed additional agriculturally-related water quality problems. For example, we believe that more emphasis needs to be placed on nutrient management. The College of Agriculture at the University of Vermont is currently helping us with a study relating to just that. Also, the impacts of agricultural practices on groundwater quality need to be more fully understood.

In the past 10 years, SCS has provided assistance in eight accelerated water quality protection projects in Vermont's Champlain Valley. Farmer response to these projects has been excellent, with 60 to 70 percent participation. We have seen tangible results, such as restored shoreline property values, smelt returning to St. Albans Bay, reduced treatment costs for drinking water in the Champlain Water District, decreased bacteria in St. Albans Bay, and the reopening of the former St. Albans Bay State Park. I would suggest that perhaps the most important result is that people are noticing an improvement in water quality.

I want to stress, though, that we are not accomplishing this alone. The Vermont Agency of Natural Resources is providing direction and focus. Vermont's Natural Resources Conservation Districts are sponsoring and promoting water quality initiatives with landowners. District supervisors are demonstrating best management practices on their farms. The Agricultural Stabilization and Conservation Service is providing financial assistance to farmers. The Farmers Home Administration is providing loans to farmers to help them install their best management practices. The Extension Service of the University of Vermont is assisting with information and education programs, including on-farm demonstrations. The Vermont Department of Agriculture has identified acceptable agricultural practices for protecting water quality. The Province of Quebec is cooperating with the implementation of a comparable program for protecting northern Lake Champlain.

Water quality is also a top priority in SCS's National Conservation Program. A major commitment to reduce soil erosion and improve water quality nationally and here in Vermont is being carried out through the conservation provisions of the Food Security Act of 1985. Also, the President's fiscal year 1990 budget proposed $13 million and 196 staff years nationally for new SCS water quality initiatives. We in Vermont have requested a portion of this funding for accelerating technical assistance in five hydrologic units, or watersheds, in the Lake Champlain Basin.

From a national perspective, a multi-agency, multi-disciplinary plan is being developed with the following goals:

One, to assess the seriousness and extent of agriculture's impact on water quality, with an emphasis on groundwater;

Two, to develop and promote the voluntary adoption of new and improved agricultural management systems that are cost-effective and enhance water quality by demonstrating their contributions to farm profitability and competitiveness.

These goals will be addressed and coordinated through integrated efforts by USDA and other Federal and State agencies. The work will be instrumental in removing obstacles to the development and adoption of environmentally-safe practices. It will focus on three major program areas:

One, research and development—initiate and expand research to improve our understanding of water contaminant sources and processes. Prove new and improved agricultural and forestry management practices that reduce the changes of water resource degradation. Determine socioeconomic impacts of current and new management practices on the farm, community, and regional bases, and measure the cost-effectiveness of these new practices.

Two, education and technical assistance—enhance water quality by developing and demonstrating new and improved production management practices from already-available research results and from new techniques developed under the research and development program. Accelerate activities to encourage adoption of these practices to reduce or prevent contamination where agricultural nonpoint source pollution of groundwater or surface water has been identified as a current or potential concern.

And three, database development—enhance collection and distribution of data on the use of agricultural chemicals and related cropping practices and soil characteristics. Improve data management activities to assist decisionmakers in addressing issues related to water resources, especially the effects of agricultural chemical use on water quality.

In summary, progress is being made in addressing water quality concerns of Vermont's Lake Champlain Basin. Farmers are good citizens who are concerned about the water quality of Lake Champlain. We know that best management practices are improving water quality. It is clear that a voluntary program is a viable, effective approach to solving nonpoint water quality problems, strengthens the rural fabric of our State, and helps maintain the viability of Vermont agriculture.

However, much remains to be done. Today, in addition to our regular programs, accelerated water quality assistance is available to about half—850—of the Basin's farms. Clearly, we must continue to work together to protect Lake Champlain and our other precious water resources. The challenge is great, but it can be met through continued support from the national, State, and local levels.

It is indeed a privilege to appear before you today on such an important topic. I welcome the opportunity to respond to your questions. Thank you.

Senator JEFFORDS. Thank you.

Jan Jamrog?

STATEMENT OF JAN F. JAMROG, DISTRICT DIRECTOR, STABILIZATION AND CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Mr. JAMROG. I certainly appreciate the opportunity to appear before this subcommittee. My name is Jan Jamrog, and I am District Director of the Agricultural Stabilization and Conservation

Service, which is an agency of the USDA, and is better known as ASCS.

I hope to provide you with ASCS' perspective on problems and solutions involved with nonpoint sources of pollution in Lake Champlain.

ASCS administers several Federal conservation programs which are designed to directly control nonpoint sources of runoff from agricultural land. Such runoff includes soil loss through erosion and the movement of phosphorus and nitrogen from animal waste into water courses.

The majority of farms which line Lake Champlain are dairy-related, and the primary problem which dairy farmers face in coping with nonpoint source pollution is the development of an animal waste system which is both environmentally sound and economically practical. ASCS has provided financial aid in the Champlain Valley to develop and install such systems on dairy farms. Financial assistance has been primarily provided through the Agricultural Conservation Program, ACP, and the Rural Clean Water Program. These are cost-share programs in which individual farms participate on a volunteer basis.

Under the Agricultural Conservation Program, a program participant is required to provide 25 to 50 percent of the cost of installing conservation practices which are designed to substantially reduce and control nonpoint source pollution from agricultural land. Over the past three years, an average of $800,000 has been utilized under this program annually to fund the Federal portion of practices which have been constructed under ACP in Vermont.

Under the Rural Clean Water Program, Vermont's St. Albans Bay watershed has received $1.6 million for the implementation of what we now call "best management practices" on agricultural land. This program, which began in 1980, is really a partnership between the Federal Government, State government, town government, and individual farmers.

Federal assistance in the way of funding and administration by ASCS, and technical assistance by the Soil Conservation Service, has been coupled with educational efforts on the part of the Cooperative Extension Service, and a comprehensive monitoring program, which John Clausen referred to, which is being conducted by the University of Vermont's Water Resource Center. The town of St. Albans has cooperated in reducing point source pollutants by upgrading the town's sewage treatment plant a part of the overall program to improve water quality in St. Albans Bay.

But perhaps the single most important ingredient in this effort has been the 75 percent voluntary participation rate by those who farm within the St. Albans Bay watershed. Problems revolving around nonpoint source pollution are of a magnitude which makes it difficult for anything less than a multi-agency, government, or private entity effort to be successful.

The cost-share concept in which the Government and private individuals combine to meet the financial needs has proved to be extremely successful. It is interesting to note that ASCS has experienced very high participation rates among individual landowners who are willing to share part of the cost of installing conservation

practices which do not necessarily result in direct increases in production on the farm.

In the St. Albans Bay project, the average program participant is contributing over $9,000 of their own money toward the installation of animal waste systems and other conservation practices which are outlined as needed in individual plans developed by the Soil Conservation Service.

In Vermont, we have seen how voluntary programs with financial incentives serve to foster a cooperative attitude toward problem-solving as opposed to a strict regulatory approach. When it comes to solving nonpoint source pollution problems, carrots really do work better than sticks.

The ingredients which have comprised successful agricultural conservation programs administered by ASCS in dealing with nonpoint source pollution are, one, voluntary programs for participants; two, incentives, financial or economically related; three, cooperative efforts at all levels of government and various agencies, along with private groups and individuals; four, a monitoring program to analyze results and increase efficiency; and five, the cost-share approach with both Government and individuals sharing the cost. This promotes responsibility on the part of both.

The success of such an approach toward solving nonpoint source pollution problems from agricultural land is exemplified by widespread acceptance by the public and a noticeable increase in water quality in project areas. Voluntary participation rates of 70 to 80 percent by farms within these project areas are common.

ASCS has attempted to accelerate this process by proposing special projects in critical watersheds of Lake Champlain. Such efforts have already been successful in Grand Isle and Franklin Counties, which border the northern part of Lake Champlain in Vermont.

In summary, it is the hope and intent of ASCS through a continuance of such programs to make progress along the remainder of the Champlain Valley in future years.

With that, I thank you for the opportunity to appear before you. If there are any questions, I will try to field them.

Senator JEFFORDS. Thank you very much. You have all given very excellent testimony.

I want to get back to one of the basic questions, and that is what kind of a data base we have. Perhaps Mr. Clausen from the University of Vermont can give me the University's perspective as to what we have to work with to determine what changes are occurring and what improvements are being made. The previous testimony is that there really has been no well-established data base on such things as phosphorus and other matters. I wonder if you can enlighten me as to what the University has.

Other areas that I would like in that regard are what kind of contribution air pollution makes as a sort of nonpoint contributor. I wonder if you could help me understand what kind of a data base we have, how far back it goes, how reliable it is, how the voluntary monitoring programs are working, and so on.

Mr. CLAUSEN. I will try to handle all those questions.

The data base that exists now is clearly insufficient to understand phosphorus in Lake Champlain. What we do have is a decade of water quality sampling from about mid-1960 to mid-1970 that

sampled all over Lake Champlain, and a number of different things in Lake Champlain, but did not sample phosphorus, the primary nutrient concerned.

Senator JEFFORDS. Is that primarily toxics?

Mr. CLAUSEN. No, it included calcium, magnesium, sodium, potassium, pH, that is, alkalinity, dissolved oxygen: the general mineralogical characteristics of Lake Champlain from a chemistry point of view, but it did not include nutrients.

Senator MOYNIHAN. If I might interrupt, Mr. Chairman, to say that across the lake in the forest preserve that was set up a century ago, we have been measuring the first robin of spring, the last maple, the deepest snow, but no one ever bothered to measure the acidic content of the lakes.

This is the Senator's point, about good information. If you want to come along and say, "We have a lot of acidified lakes," you could say, "Yes, but do we have more or less than we had a century ago?" The answer is that nobody knows. It is never too late, and never too soon, to start this sort of thing.

Mr. CLAUSEN. I certainly agree with you, Senator. They invented the PH meter in 1902.

There is a station at Rouse's Point run by the U.S. Geological Survey that is probably the longest lasting single station that has existed that does include nutrient data, but it is one point in a 110-mile-long lake.

The lay monitoring program—I don't know all the details on it as well as my colleagues from the State—is collecting phosphorus information at a number of stations. It is summer information; does not include winter information.

As far as I am concerned, the bottom line is that the data base on phosphorus is totally insufficient from a scientific point of view, if not nonexistent.

Regarding atmospheric deposition, there was an interesting paper that came out of New York very recently where they have been sampling rainfall for a number of heavy metals and all sorts of things, and one of the constituents that was turning up in rainfall in New York has been pesticides. They have been measuring atrazine levels in rainfall in New York. We must assume that that is in Lake Champlain, as well as falling on New York.

Senator MOYNIHAN. Who published that?

Mr. CLAUSEN. I could get that information for you.

Senator MOYNIHAN. Would you? I appreciate that.

[Information to be supplied follows:]

Richards, R.P. J.W. Kramer, D.B. Baker, and K.A. Krieger. 1989. Pesticides in rainwater in the northeastern United States. Nature, 327; 129–131

Senator JEFFORDS. Okay. You use an 80 percent figure as to the contribution of the environment. How did you get that percentage?

Mr. CLAUSEN. I stole that percentage, Senator, from two previous reports, two EPA reports. So that percentage is not mine.

Senator JEFFORDS. With respect to the Federal programs, I am interested in the amount of voluntary compliance and whether or not you feel that it would be necessary to go to a stick, or is the voluntary contribution such that it is diminishing the problem so that you don't need to use the stick for those who are not participating?

Mr. TITCHNER. Our experience so far, as I mentioned in my testimony, is that farmers are good citizens interested in good water quality. Also, our studies indicate that not every farm has to have 100 percent control in order tol drastically improve the water quality in the lake. We have found that the high priority farms, those that are nearest the lake and its tributaries, have essentially all participate in the available programs. So at this point, I think we can conclude that until additional information is uncovered, they are meeting water quality goals. Of course, best management practices represent the state-of-the-art technology at the present time; that doesn't mean that we won't learn more in the future from the efforts of Dr. Clausen and others. At that time we may have to take another look. But, participation in the project areas of 60 to 70 percent appears adequate to address the critical problems.

Referring to your earlier question, we have not relied entirely on long term data bases to identify needed treatment. We have relied on the fact that there is too much phosphorus in the lake now—we known that from current data, and that if there is already too much, reducing or stopping additional nutrients from going into the lake is a sensible thing to do. Agriculture is participating in the effort to stop additional phosphorus from getting into the lake. This is going to have a positive long term effect, and we're seeing some signs of that already.

Senator MOYNIHAN. I want to thank Senator Little for being here. It's a great privilege having you appear before us. Whenever you're in Washington, let us know. I just want to go back to your statement that democracies make good decisions when they have good information.

Thank you all.

Senator JEFFORDS. Just a second, George. I meant to ask you, about the increasing number of people on the shoreline—do we have that pretty well under control as far as the sewage disposal of chalets and whatever is concerned?

Mr. LITTLE. I guess my answer would be that, no, I don't think we do have it under control. I think the zoning along the lakefront has become much more restrictive, at least on the Vermont side, but pollution from old septic systems and so on is still, I would say—maybe "rampant" is too strong a word, but certainly it is a problem all along the lakefront. I'm sure those are still leaking, until something can be done to clean those up. The town of Colchester, as you have probably read, is buying all these camps up over a period of years, so that land will become public and will be used as a park.

Senator MOYNIHAN. Do we have any data, Senator, on the corresponding proportions of public beach on the Vermont side as against the New York side? Is there a disparity here?

Mr. LITTLE. No, we really don't. The Vermont side of the lake has a more circuitous coastline; in number of miles it is probably somewhat greater, so we have more opportunity for public lands because of more mileage. But I don't think we do have a greater percentage. I think I read that there is more public land on that side.

Senator MOYNIHAN. Let's get Mr. Jamrog's view.

Senator JEFFORDS. I think that one of the most important problems on our hands is identifying areas that ought to be in public control of some sort, preserved more for the public. We should be aware of what we have and what we should have.

I am pleased to hear about Colchester and their efforts there. Do you know of any other State efforts in this regard?

Mr. LITTLE. Not offhand.

Senator JEFFORDS. Thank you very much. We appreciate your testimony.

Senator MOYNIHAN. Thank you.

Senator JEFFORDS. We will now hear from our final panel. I want to compliment the witnesses for staying right on time; we are going to be able to make our trip to New York without any problem.

Our final panel consists of Ned Farquhar, Associate Director, Vermont Natural Resources Council; Lori Fisher, Executive Director of the Lake Champlain Committee; Alan McIntosh, Acting Director of the Vermont Water Resources Research Center at the University of Vermont; and Carl Reidel, co-chair of the Governor's Bi-State Citizen Advisory Committee on Lake Champlain.

Mr. Farquhar, please lead off.

STATEMENT OF NED FARQUHAR, ASSOCIATE DIRECTOR, VERMONT NATURAL RESOURCES COUNCIL

Mr. FARQUHAR. Thank you, Mr. Chairman and Senator Jeffords. It's a pleasure to be here today.

We've already had an earful on the problems in Lake Champlain, so I guess we have to chart a course.

Mr. Chairman and Senator Jeffords, I am Ned Farquhar, Associate Director of the Vermont Natural Resources Council. We have over 4,000 members interested in environmental quality issues in Vermont. We appreciate your interest in nonpoint source pollution issues in the Lake Champlain basin.

I won't reiterate any of the comments today about the lake's water quality, its international significance as a biosphere reserve, and its environmental sensitivity. Instead I will applaud you for focusing on the nonpoint source pollution problem and hope that today's meeting will help advance the cooperative and constructive efforts that are just getting underway in the basin.

I'd like to focus on three areas, which include pollution research, technical assistance, and continuing cooperation in the future. I would point out that at this point the VNRC doesn't advocate new laws and regulations to control nonpoint source pollution. We see this cooperative effort that has gone on, particularly in the agricultural area, as being very productive, and we want to see more money going into that, or at least a continuation of the funding that we have now.

I guess to accomplish these three purposes that I mentioned—research, assistance, and cooperation—one of the best things that we can do is to provide the New England River Basins Commission with the planning effort that went on in the late 1970s, because there has been a lot of work done already in the way of research, planning, and technical advice for the future with an action plan

for Lake Champlain. But short of that, I think we do have to take some individual, discrete action.

As far as pollution research is concerned, experts agree that nonpoint source pollution is a major problem in Lake Champlain. Because the largest part of this pollution results from agricultural activities, the pollution is dispersed, diverse, and difficult to control. We recommend several areas of research, funded cooperatively by the State and Federal Governments.

The first is for ecosystem studies. Often our research is focused on elements of the pollution problem, but it would be useful instead to look at the whole environmental impact with the interrelation of the different types of pollution that we see in the lake, including air and water. Without more knowledge of the ecosystem impacts of the individual pollutants and uses of the lake, we risk focusing on the wrong aspects of today's problems and missing important problems—for instance, atmospheric pollution is important.

We need to improve our understanding and control of onshore land uses that affect the lake, and we've talked a little bit about sewers and pesticides, and we need to look at the effects of marina development on the lake. In an ecosystem study these types of influences can be identified and management steps can be recommended.

The leading water pollution problem in the lake right now appears to be phosphorus. We were pleased this year when the Vermont Legislature passed a requirement for planning to upgrade Vermont's sewer plants for better phosphorus treatment. I have attached this requirement to the back of my testimony. This new plant can help control the point sources discharging phosphorus into the Lake Champlain basin, but they don't deal with that Mt. Mansfield-sized agricultural problem that we heard about this morning.

So we see a couple of other points. The cumulative effects of phosphorus discharges, especially when combined with pollution from other nutrients and toxics, aren't clearly understood. And secondly, there is not a great data base right now for deciding which tributaries and which nonpoint sources deserve priority attention in a world of diminishing fiscal resources.

EPA's commitment to assist New York and Vermont in a phosphorus budget study will help. It is the kind of research assistance we need.

We are also looking at the effects of other nutrients, including nitrogen. We need to be sure that we don't have a "tag-you're-it" succession of pollution problems in Vermont and in New York, where we deal with phosphorus and then find that the next problem hasn't been anticipated.

As far as toxics are concerned, there is even less information about the sources and impacts of toxics. We know that they are showing up in the water and we know that there are numerous hazardous waste sites and landfills and other potential sources, including the atmosphere, in the Lake Champlain basin. The primary sources and effects have not been identified yet. We need a management response to the toxics problem based on research and information.

The best management practices that are now being implemented by the farmers also need research. We need to be sure that we are putting the right amount of emphasis on the right kinds of best management practices. My understanding from discussion with some of the experts in this field is that we don't know whether what we are doing is optimally effective or not.

As far as technical assistance is concerned, as I said before, we endorse the continuing education and assistance programs that are ongoing. It appears to us right now that it will take about 20 years, just on the Vermont side, to deal with the nonpoint source pollution of agricultural runoff. Twenty years is far too long for a program dealing with this problem. We need to do that in a much shorter time frame. That means faster education. We are finding that the farmers are willing to participate and to contribute, so we need to accelerate technical assistance programs to give them more opportunity to address their own pollution problems. We could address that either through existing planning programs in the Department of Agriculture or through the Clean Water Act programs of the Environmental Protection Agency.

As far as continued cooperation is concerned, the establishment of an EPA field office for Lake Champlain would stimulate appropriate intergovernmental coordination. Right now that is the concrete measure that we need to assure that Federal water quality law is being implemented in the lake, and bring the Federal and State agencies together to coordinate air and water quality protection, for research policy coordination, and for enforcement. So we urge the committee to look into the possibility of establishing an EPA field office for Lake Champlain.

In summary, I guess I would just say that we need to look at an EPA field office; better basin ecosystem analysis; better research into elements of the pollution problem, including toxics, nutrients, and best management practices; and continued funding for technical assistance and capital improvement programs in larger doses.

Thank you very much for your time.

Senator JEFFORDS. Thank you very much.

Lori?

STATEMENT OF LORI FISHER, EXECUTIVE DIRECTOR, LAKE CHAMPLAIN COMMITTEE

Ms. FISHER. Good morning, Senator Jeffords, Senator Moynihan, and other members of the audience here who are concerned about Lake Champlain's water problems. My name is Lori Fisher; I am Executive Director of the Lake Champlain Committee. We are a 1,700-member citizens' environmental organization that has worked on diverse water and land use issues throughout its 26-year history.

On behalf of the Lake Champlain Committee, I congratulate the Senate Subcommittee on Water Resources, Transportation, and Infrastructure for focusing attention on this issue, and I very much appreciate the opportunity to make some comments on it.

One cannot delve seriously into Lake Champlain issues without confronting nonpoint source pollution head-on. By definition, nonpoint source pollution is a compound, complex problem. There is no one action which will constitute a complete, sensible solution. In

the last quarter of the 20th century we have reached a critical stage in Lake Champlain's history, a time of unprecedented use and demand, increasing shoreland and basin-wide development, and new indications of water quality degradation. The large number of issues facing the lake has itself become the central management issue.

Multiple and diffuse sources of pollution confront this lake. Multiple and diffuse sources of pollution must be addressed in an integrated management approach. Our testimony will focus on agriculture, toxics, and land use development, research, and—again—funding needs, although there are many other components to the nonpoint source pollution problem.

Agriculture is integral to the scenery and cultural identity of the Lake Champlain basin. Farming has created the open spaces which afford spectacular views of the lake and its surrounding highlands and mountains. Red barns, hay bales, and black and white cows are the motifs of the Champlain Valley.

A key component of the region's rural working landscape, agriculture is also the most significant contributor to nonpoint source pollution in the basin. Soil erosion, manure, milkhouse waste, and fertilizer runoff are the primary problems.

We have heard about the various programs of financial and technical assistance available in the watersheds. In 1979, the USDA Watershed Protection and Flood Prevention Program was initiated in Vermont's LaPlatte River basin. This was the first in the country. Since that program's inception, seven other Lake Champlain basin watersheds have received some form of Federal assistance. Ten additional Champlain watersheds have been identified as requiring a measure of nonpoint source control, but the necessary funds are not available.

Only about half of the basin's agricultural areas on the Vermont side are currently eligible for accelerated Federal agricultural aid. The reach of existing assistance programs is limited for a number of reasons. One, Federal support monies are tight and tend to fluctuate. For example, although the Vermont Soil Conservation Service had previously received annual appropriations of between $300,000 and $400,000 for watershed protection and flood prevention programs, they were only able to access about $150,000 for that program during fiscal year 1988.

No. 2, all Federal financial assistance is in the form of cost-sharing. The programs with a 50 percent cost-sharing level have a much lower participation rate than the single project with the 75 percent cost-sharing; that is the Rural Clean Water Program for the LaPlatte River. This indicates that many farmers are less able or less willing to shoulder the larger financial burden. The average participating farmer receives and contributes between $22,000 and $25,000 for nonpoint source control measures under these programs.

Three, Federal priorities and funding for technical assistance have not remained constant. Although the 208 planning process of the Federal Clean Water Act amendments identified 10 additional Lake Champlain basin watersheds needing agricultural nonpoint source pollution control, funding for these projects has decreased and the flood prevention component of the program has become a

higher priority than water quality improvement. Section 319 of the Water Quality Act of 1987, dealing with nonpoint source assessments, calls for a final report by January, 1990. Grants for implementation of that section, as we have heard, have never been appropriated.

Comprehensive monitoring of nonpoint source control measures used in the St. Albans and LaPlatte River drainages during the past six or seven years indicates that best management practices supported by Federal assistance programs do work. Significant improvements in stream water quality and turbidity are evident. The Soil Conservation Service estimates that between 60 and 70 percent of all eligible Vermont farmers participate in the program. This figure is will above the national average, suggesting that basin farmers are generally eager to participate in cost-sharing assistance programs.

Yet, for the reasons listed above, 850 farmers in the Vermont portion of the basin are not eligible for accelerated Federal assistance. At least 600 of these farmers need to put in complete systems.

Approximately 1,000 farms in the Lake Champlain basin still need some form of upgraded agricultural systems to minimize nonpoint source loading. The total cost of implementing such a program would require $45 million in capital construction costs—that's about $45,000 per farm with each farmer paying 25 to 50 percent of the tab—and $30 million worth of technical support for educational information, planning, lay-out, and design, for a total of $70 million.

Under current funding levels, it would take 20 years to get all 1,000 farms through the program. And an additional 10 staff members would be needed for the Vermont Soil Conservation Service to meet that time frame.

This raises a policy issue of who should pay and how much. We talk earnestly in Vermont and upstate New York about preserving and supporting local agriculture. A non-regulatory approach appears to be effective, but we need to reinforce present efforts with a consistent Federal commitment to fund and staff ongoing assistance programs. In short, we must reverse the trend toward dwindling Federal funds for cost-sharing of agricultural nonpoint source control measures. We also need to carefully consider whether State assistance is to needed to accelerate the program and shorten that 20-year time frame.

Regarding toxics, we know that the contamination of Lake Champlain water, biota and sediments, is a serious concern. The basin faces municipal and industrial discharges, waste disposal sites, atmospheric deposition, storm water runoff, and urban and agricultural pesticide usage all contributing to this issue, but there is scant information about the magnitude of these loadings or the fate and effects of these materials within the Lake Champlain ecosystem.

Toxic substances are among the most difficult environmental problems to track, control, and manage because of the myriad of toxic compounds that can be formed, the complex responses triggered by various toxic substances depending upon the concentration levels, and the diffuse sources of toxic loading. We see, for ex-

ample, pesticides from agriculture, polycyclic aromatic hydrocarbons in urban storm water runoff, phenols and phthalate esters in landfill leachate, and PCBs and lead through atmospheric deposits.

There have been only limited attempts in the past to define the extent of toxic contamination to Lake Champlain's water, sediments, and biota. Quebec and New York and Vermont all have various programs, with Quebec's being the most extensive. I won't go into that now. But some of the results have indicated, principally from fish studies, that we have a PCB problem in the lake. These studies have prompted bi-state health advisories that recommend limiting the consumption of lake trout 25 inches and longer to no more than one meal per month, and none at all for certain risk-sensitive groups like pregnant women.

Senator JEFFORDS. Ms. Fisher, if you could just summarize that, we'll make the entire statement a part of the record.

Ms. FISHER. Sure. I'm sorry.

Senator JEFFORDS. We're running out of time.

Senator MOYNIHAN. Your full statement will be included in the record.

Ms. FISHER. Basically, the need for Federal funding is needed in the monitoring program.

We also have an extensive development problem on the lake right now, and this raises concerns about sewage disposal, water supply, erosion impacts, urban run-off, and the carrying capacity of the lake.

Some of the development is land-based. A lot of it is also water-based, which means a tremendous amount of marina development. It will essentially nearly double the present number of slips. It also points to a lack of a focused approach through—we look very specifically at projects such as this to look over all of the continuing impacts of these kind of different development issues.

In short, with the development, in particular, we are startled by the fact that we lack consistent review policies. There are over 224 governments in this area. The laws and policies and regulations vary tremendously from town to town depending on where you are on the lake. There are different regulations on the lake.

If we are really going to address these issues we need to develop coordinated lake policies. The most pressing is the Shoreline Management Act which would establish density setback and sewage disposal requirements, and also a basin-wide policy for public access, shore land, and island acquisition, commercial and recreational use of surface water, and viewshed protection both from and to the lake.

We are also going to need to consider different institutional frameworks in order to be able to actually institute these kinds of policies with all the different governments within the basin. We are really frustrated by that lack of overview in terms of developing new policies.

Finally, since the New England Rivers and Basins Commissions were zero-funded in 1981, there has been no ongoing, comprehensive collection of water quality data on the lake. Faced with a nearly ten-year gap in data, we can only "guesstimate" the health of this ecosystem.

We lack basic baseline information for informed decisions on lake and shore land management. What little research that does happen on the lake tends to be site or project-specific and lacking an integrated ecosystem approach to issues. Regulators therefore make decisions in a vacuum, with little emphasis on cumulative impacts, synergistic effects, or biological implications of proposed projects.

The States of New York and Vermont and the Province of Quebec have all made certain initiatives recently on increasing cooperation in lake research with the signing of a Memorandum of Understanding last August. The agreement was accompanied by a very ambitious work plan outlining short- and long-term objectives on a whole host of issues.

There have been certain State commitments already made to meet some of the draft work plan's short-term goals, but additional funding and additional funding recommendations are hoped to be part of program budget requests in both States, but it is going to take millions of dollars to establish the required research and monitoring programs on the lake.

The most pressing needs would include studies on toxics, eutrophication, and land and water carrying capacity. The technical reports established by the NERBC efforts of a decade ago and the draft work plan provide a decent framework for action.

Federal monies have been channeled to Chesapeake, San Francisco, and Narragansett Bays in recent years and Federal funds are essential here, too, if we want to actively protect Lake Champlain's water quality.

When it comes to funding the comprehensive management and assistance programs, Lake Champlain falls into black hole. Because it is the sixth largest, not one of the Great Lakes, Champlain is not eligible for the big money planning and management assistance programs covered under the Coastal Zone Management Act. Many of its monetary needs run well beyond the general allocations of the Clean Lakes Program which has a modest annual budget—threatened in recent years—of around $15 million.

The patchwork quilt of funding applications that the two States recently assembled in an effort to gain $850,000 to develop a scientifically sound phosphorus budget for the lake and fill a large technical information gap is illustrative of the difficulties Lake Champlain has in attracting monies for comprehensive studies.

We believe that Lake Champlain should be included under the provisions of the Coastal Zone Management Act. This possibility and other potential sources of funds should be investigated this summer. In addition, the lake needs increased involvement from the EPA, of which the nearest field office is in Boston.

Lake Champlain is not just another local attraction prized by adjacent jurisdictions. Designation of the Lake Champlain basin as an international biosphere reserve reinforce the lake's status as a unique resource not only to the States and province that share its borders, but to the national and international community at large.

But there is a major difference between the Champlain- Adirondack Biosphere Reserve and other reserves. Lake Champlain is not a wilderness, but a rural landscape with a history of centuries of human use and habitation. It is also a region that is struggling to

maintain a healthy and harmonious balance between the uses of its natural resources and the preservation of its ecological, historic, and cultural integrity. Whether it reaches a point of equilibrium is largely dependent upon whether we can find the political will and adequate resources to address the issues at hand.

Again, I thank you for focusing attention on Lake Champlain. We really look forward to the follow-up activities associated with this hearing and to working cooperatively with you to find creative, long-term solutions to address the problems that have been raised.

I also apologize for taking more time than five minutes.

Senator JEFFORDS. Mr. McIntosh?

STATEMENT OF ALAN McINTOSH, ACTING DIRECTOR, VERMONT WATER RESOURCES RESEARCH CENTER, UNIVERSITY OF VERMONT

Mr. MCINTOSH. I'll try to make excellent time. Thank you, Senators.

Thank you Senators Jeffords and Moynihan for the opportunity to talk about nonpoint source pollution this morning.

I am Alan McIntosh, the Acting Director of the Vermont Water Resources Research Center in the School of Natural Resources at the University, and I am a toxicologist by training.

I'd like to move right to my main point this morning, which is toxic substances in the lake. As Lori and others have pointed out this morning, it is a complex and very difficult question to deal with.

I will look at three questions very briefly. One, are there substantial nonpoint sources within the Lake Champlain basin and which of these are most significant? Secondly, are these substances posing a problem to the lake? And, finally, I have a few suggestions on how we can deal with the issue of toxics in the basin.

Clearly the answer to the first question is yes. Research at the University of Vermont and elsewhere across the nation has indicated that agricultural runoff typically contains a wide variety of pesticides. Roughly 10 percent of the Lake Champlain basin is used for agriculture. It is likely, then, that we must be concerned about these particular sources.

Urban storm water runoff, as has been pointed out, may carry heavy metals like lead, and persistent hydrocarbons like the carcinogen benzo(a)pyrene into lakes and reservoirs. While development within the Lake Champlain basin is limited, accumulation of runoff associated toxics in areas like Burlington Harbor and Cumberland Bay must be considered.

Other toxics like PCBs are carried into the lake via the atmosphere. Fifty percent of the PCBs carried into Lake Ontario are estimated to come from the atmosphere.

Other sources may be less apparent but also of concern. Leachate from some of the 96 landfills within the Lake Champlain basin may eventually reach the lake. Someone called this "garbage juice," and I think that's a very accurate term.

As has been pointed out, it contains a variety of heavy metals and other organic pollutants. Even substances like mercury depos-

ited in Lake Champlain's sediments decades ago may still be adversely affecting the lake.

Which sources are most important? Clearly any source that contributes persistent, highly toxic pollutants to the lake must be considered with concern; however, to effectively evaluate the importance of the various nonpoint sources within the basin requires that we know the types and amounts of pollutants generated, their fate in surface waters, and ultimately their affects on the lake. Today we do not have this information.

For example, as far as I can tell, no one has calculated the discharge of any pesticide into Lake Champlain. No one has quantified the amount of PCBs or similar substances transported through the atmosphere. In fact, I am not aware of a single study, except for a brief bio-assay conducted by the New York DEC, in which effects of toxic substances on the lake have been assessed.

I should add at this point that there is a major industrial discharge at Ticonderoga, and I think it is imperative that we be very careful in addressing the effects of that point source discharge as well.

Are toxic substances causing a problem in the lake? I think the greatest question is that of long-term, chronic impacts. I don't think we'll see massive fish kills in Lake Champlain. We're not dealing with that level of toxic pollution. However, chronic effects, including reproductive losses and decreased growth rates, etc., are a distinct possibility. These effects, if continued over time, could lead to very severe losses of sensitive species within the lake. These effects could be magnified throughout the food chain of Lake Champlain.

Finally, several suggestions on how we should proceed.

First, I believe it is critical to begin a comprehensive monitoring program on the lake. In addition to routine water quality determinations we have heard about this morning, we must pay heed to biological parameters, for without such information we will not be able to determine future changes. If we have no baseline, we can't tell what is going to happen in the future.

Secondly, I suggest the undertaking of a five-year research program specifically addressing nonpoint source pollutants in Lake Champlain. I think it will take the first two years or so to identify the sources and the fate of toxics within the lake, and the second part of the program should be devoted to assessment of the effects of those pollutants. Such a program will require well-coordinated, inter-disciplinary team research. However, I submit that in New York and Vermont we have the research talent available.

I have had contacts with the people from Clarkson University. Dr. Joseph DePinto is very interested in the lake. A NOAA scientist from Ann Arbor—they are very interested in coming to work on Lake Champlain. Thus, I think the talent is there to get the job done.

Finally, I suggest that local and State initiatives, alone, will not be sufficient to support the research and monitoring efforts needed on the lake. To develop the kinds of programs needed to support a prudent, well-conceived management plan for Lake Champlain will probably require an expenditure of $30 million to $40 million over the next decade.

To help preserve this vital resource, I urge the Congressional delegations of New York and Vermont to act in consort to explore various Federal funding avenues to protect this valuable lake.

Again, I thank you for the time.

Senator JEFFORDS. We thank you very much for your excellent testimony. I will have some questions for you later.

Mr. Reidel?

STATEMENT OF CARL REIDEL, COCHAIR, GOVERNOR'S BISTATE CITIZEN ADVISORY COMMITTEE ON LAKE CHAMPLAIN

Dr. REIDEL. My name is Carl Reidel. I currently serve as the Vermont cochair of the Lake Champlain Citizen Advisory Committee appointed by Governor Kunin. I'm also the New England Director of the National Wildlife Federation, which is the largest conservation organization in Vermont, New York, and the nation as a whole.

Today I speak for myself, but with the full expectation that those I represent share my love for this great Lake Champlain. If I may borrow a few words from Thoreau; he once said, "I wish to speak for nature . . . I wish to make an extreme statement, if so I may make an emphatic one, for there are enough champions of civilization."

I wish to speak for the last Great Lake. I wish to make the extreme statement for the only UNESCO-designated lake-forest international Biosphere Reserve in the world. I wish to make the emphatic statement for Lake Champlain.

We here today—all of us—have enormous responsibilities as stewards of this incredible national treasure—this international resource. My colleagues have outlined some of the serious problems which threaten the Lake today, but I think most of them have understated the problem, with the exception of my immediate colleague here, Dr. McIntosh.

I know that you are here to better understand the nature and the depth of the issues, but also to assess the urgency for action. Let me address the latter—the need for action.

Let me be as emphatic as possible. How urgent is the need for action? I suggest that the answer lies not in the question, "How serious is lake pollution?" but rather to understand that this lake region is, comparatively, one of the last remaining watersheds on earth where we still have a chance to learn how to live with a natural system in a way that is sustainable, economically and socially productive, and ecologically sound. Here, in this valley, we have a biosphere model unsurpassed anywhere for integrating research with a living demonstration of effective democratic government and individual responsibility.

I do not mean to understate the pollution problems; they are extremely serious. But, unlike most of the major lakes in the northern hemisphere—and surely all of the other Great Lakes—prompt and decisive action can make an incredible difference here in the Lake Champlain basin. And that action can make all the difference on a national and global scale in terms of what we can learn here that will be a model for the rest of the world.

I strongly urge this committee to recommend to the Congress the establishment of a Lake Champlain Commission, with substantial appropriations to support comprehensive environmental monitoring, which we know is essential; broad-based inter-disciplinary research; and a greatly accelerated program of water quality improvement, air pollution control, and land use management for nonpoint pollution abatement; and historic preservation of major national heritage sites up and down and under this lake.

I urge the governors of New York and Vermont to support this congressional action with increased efforts to implement the bi-state agreement, which is barely off the ground, and immediate action to work toward the establishment of an interstate compact to serve as the jurisdictional authority for the proposed Lake Champlain Commission. And, finally, to negotiate with the Province of Quebec to establish a formal treatment for long-term management of this truly international biosphere region.

With the support of the Federal Government through the agencies of the USDA and the U.S. Army Corps of Engineers and the Congress, I urge the State of Vermont and New York to take prompt action to restrain development pressures on the lake until long-term programs can be established. This should include interim zoning along all shorelines and extending into major rivers; a moratorium on all expansion of marinas, harbor and stream alterations, and major corridor developments; and establishment of use zones on the waters of the lake.

I urge the Congress to provide interim emergency funds to the States to accelerate coordinated local and regional planning efforts in watershed communities, in the Adirondack Park, and the Green Mountain National Forest so that we can replace interim zoning as soon as possible.

I urge our citizen conservation organizations to support these efforts and to set aside their short-term special interests for the higher good of a long-term protection and management program. It is time for us to think like a lake. We are all in this together.

An extreme statement? I think not. By taking bold action now, we can avert enormous mitigation expense in the future. Witness Lake Michigan. The National Wildlife Federation will announce tomorrow that it is unsafe to eat fish from Lake Michigan from now on.

By taking bold action now here in this basin we can establish a working demonstration that could inform water resource management worldwide. By taking bold action now, we would simply be taking our last best shot at being the stewards of the last great lake.

Again, I urge your committee to recommend prompt support by the Congress. We cannot do this alone. We are a relatively poor region, albeit rich in environmental quality. We are fragmented into myriad jurisdictions with irrational boundaries, thanks to our forefathers who came down the lake. Bold Congressional action is imperative and the only answer.

I trust I have not strayed too far from the purpose of your meeting, but I don't know of any other way to realistically tackle the problems of this basin.

Having said that, I hope you will see my statement as less extreme—in fact, a very modest proposal.

Have a good trip across the lake. Don't drink the water.

Senator JEFFORDS. Thank you all for very excellent testimony. I have worked with the Lake Champlain Committee over the years, and they and all of you have been super in trying to protect it. I certainly appreciate your testimony.

I am interested in the Ticonderoga plant. I have a couple of questions here. At the time the decision was made, there were excessive amounts of mercury in the soil. The decision and recommendation of the experts at that time was that it would do more damage by taking it out and removing it than they would by leaving it in. You mentioned it. Does that still appear to be the wise solution, or is the long-term leakage going to make a short-term upturn of mercury?

Mr. MCINTOSH. I think we need to go back and find out how deep the mercury is now. If, in fact, it is buried by a substantial overburden of sediment, it may be wisest to leave it there. It would be a prudent thing to see exactly where that mercury is at this point. I'm not sure we know that right now in terms of where the contaminants are located in those sludge beds.

Senator JEFFORDS. Also, with respect to that, we have a prolonged lawsuit ending up in standards that are requiring substantial monitoring. Do you know the results? Do you know if there has been any monitoring?

Mr. MCINTOSH. I have not been involved with it. As you probably know, there is a court case that is not quite resolved yet. There has been an extensive amount of data collected around the discharge.

Given the possibility for very broad distribution of that discharge throughout the basin, though, I'd like to see us expand the area of study well beyond the immediate discharge. I don't think we've done that yet.

Senator JEFFORDS. I'm not talking so much about the court case, but I am deeply interested in this and will pursue it as soon as I can.

Mr. MCINTOSH. I suspect you'll have comments on that on the other side of the lake today.

Senator JEFFORDS. Senator Moynihan?

Senator MOYNIHAN. I'd just like to speak with great gratitude for a very first-rate testimony. The range of views and backgrounds is good. I had a very strong feeling on this. I persisted in our committee and with the EPA. Either conservation becomes science-based, or it will become very class phenomenon and vulnerable. The people who will say to you that we need to do more research on this will sometimes say research is an excuse for inaction. They have no appreciation. The lack of research is a much better excuse for inaction.

I did not know PCBs could be transported by rain.

Mr. MCINTOSH. Rain and dry fall—perhaps more through bright sunny days like we have had in the last few weeks. If you look at the atmosphere, it comes in dry and wet fall.

Senator MOYNIHAN. The other point I'd make—and we mentioned trying to get the sludge out. A real and terrible problem that we see throughout our work is the matter of disposing of

waste which is toxic. Where ought they to be? I'm on this side of the aisle, and no New Yorker is present.

I could tell a war story. Ten years ago I got the money into an appropriation bill for the State of New York to dredge the PCBs that were deposited by the General Electric Company. They were not understood to be toxic. I don't know how that came about in the whole sequence, but there was this faction there. In ten years the PCBs are still there and the money is still there—although I don't know how much longer the money will be there— because they haven't been able to agree on a place to put it. It is beginning to plume.

And we have a situation in New York down at the bottom of the Hudson River. We are not able to build what would have been the greatest urban development since Central Park. We couldn't build this park because we would interfere with the spawning of the striped bass which come up the river, and the PCBs come down, and you can't touch them because of the PCBs which you can dredge because of the problem landfill. In the meantime, you can't build the park because it interferes with the spawning of fish you can't eat.

I think that suggests that we have difficulties.

Mr. REIDEL. I think it suggests, too, Senator, that if we don't deal with source reduction we're going to be buried in our own crap. Our programs take waste out of the air and puts it in the ground. The people who have the ground fills want to burn it and put it back in the air. The sludge removals from the lake—they want to burn that and put it in the air. We must stop the source of this pollution—the stuff that is coming in by air. Yesterday you could not see the Adirondacks from Charlotte, Vermont. You couldn't see them because of air pollution.

I think it is probably more severe here at times than it is in Washington, although we have different kinds of pollution there. We're not paying attention to that. We heard testimony all morning, and we didn't hear anybody talking about air. We had farm interests, we had conservation interests. We have so divided the problem into special interests—

Senator MOYNIHAN. Most things do cycle through the air. I guess the point to be made here is that I had hoped when the Superfund began that we would start a process whereby we would clean up our residue but stop production and in a generation or two this would be pretty well controlled. The latter hasn't happened.

Mr. Chairman, I want to thank you for this opportunity. I have truly learned a lot. I hope we do as well on the New York side.

Senator JEFFORDS. We deeply appreciate your coming over. I'm looking forward to this afternoon.

Senator MOYNIHAN. In 1955, I was assistant secretary to the Governor of New York. I sat outside his office where people that wanted to see him came. So I spent my time talking with the farmers and he had one point. He said, "New York State makes most of the maple syrup in the world, and very good maple syrup, but nobody knows that New York does it because then we have to ship it over to Vermont and it says 'bottled in Vermont.'" So I had a brief, short, life as a merchandising expert. I went to the governor and said, "Governor, I've got a great plan. Challenge the Governor

of Vermont to a contest over whose maple syrup is best. We won't win, but in the process people will find out that we make it."

The governor liked this. I think he had some misgivings of republican farmers voting democratic.

Senator MOYNIHAN. So we had a great contest in the State fairgrounds in Syracuse, New York. It went wonderfully until the judges announced the winners. First prize went to Ontario.

That was the end of my brief career in merchandising.

Senator JEFFORDS. Thank you all for coming. I want to especially thank the staff.

[Whereupon, at 11:35 p.m. the subcommittee was recessed, to reconvene at 1:00 p.m. that same day at Plattsburgh, New York.]

[Statements submitted for the record follow:]

State of Vermont

AGENCY OF NATURAL RESOURCES
103 So. Main St.
Center Building
Waterbury, Vermont 05676

Department of Fish and Wildlife
Department of Forests, Parks, and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

OFFICE OF THE SECRETARY

Statement of
Nancy Bazilchuk,
Executive Assistant to the Secretary
Vermont Agency of Natural Resources
to the
Subcommittee on Water Resources, Transportation and Infrastructure
Committee on Environment and Public Works
U.S. Senate
June 28, 1989

Thank you for this opportunity to testify today. I am here on behalf of Vermont's Agency of Natural Resources, the umbrella Agency that oversees the activities of the Departments of Environmental Conservation, Fish and Wildlife and Forests, Parks and Recreation. I would like to think I am here to speak for the Lake as well.

Lake Champlain, the 7th largest freshwater lake in the United States, all 436 square miles of it, survives as a beautiful jewel despite our best efforts to destroy it. We have dammed its major tributaries, ending age old spawning runs, logged its hillsides, filled in its wetlands, and pumped sewage into its bays.

That it has survived at all is a happy accident. Our population is small, and even our most determined efforts to destroy the lake have been counterbalanced by the sheer size of the lake compared to the population base that enjoys its clear blue waters.

It has helped that we are somewhat isolated, even though we sandwiched between large urban areas. The Census people tell me Lake Champlain is within an easy day's drive of 65 million people.

A quarter century ago, then President Lyndon Johnson joined Vermont's Senator Aiken in an aerial tour of Lake Champlain and commented "things would really hum if Texas had it." Senator Aiken, a taciturn man, gave no known and printable response, but I can imagine he thought to himself that it was just as well that Vermont, New York and Quebec had the lake instead of Texas.

In fact, things did once hum on Lake Champlain, over a century ago, when Texas was not yet a state. A substantial

iron industry grew in the Ausable Valley of New York. A booming raw lumber industry was established in Burlington.

Both industries grew rapidly during the mid-1800s, consuming more and more of the available timber on both sides of the Lake. At peak production the Ausable Valley accounted for 25 percent of the iron ore production in this country. Burlington was the young nation's third largest lumber port.

Then both industries swiftly disappeared. The discovery of rich iron deposits in the Mesabi range contributed, but in essence the industries had eaten themselves to death, consuming every accessible stand of timber.

Vermont was 75 percent clear-cut, and the Ausable Valley was described by L.E. Chittenden as a region in which "the smoke of coal pits covered the land. The trees were swept away as if some gigantic scythe-bearer had mowed it over. One may travel now for miles in that region and not find a tree large enough to make a respectable fish pole."

Of course, there was not much need for a respectable fish pole. The Lake was near dead - the victim of industrial waste from both sides and from massive siltation that choked tributary rivers each time rain fell on the treeless land.

It was not wise environmental stewardship that retrieved the Champlain Valley from the brink of environmental disaster, but the economic bust that fell on our great consumptive industries.

The current boom in development, based largely on the Lake's health and beauty, may be the next threat. This time, perhaps, we are better prepared to understand and respond.

I see your visit today as an encouraging sign that we are indeed, prepared to respond. We have, in Lake Champlain, a unique situation, a large waterbody, that, despite our use, is fishable and swimmable.

Our ability to live in harmony with the lake was recognized just this year, when the United Nations Man in the Biosphere Programme named the Lake Champlain - Adirondack region as an international biosphere reserve - the fourth largest such reserve in the world.

The designation, as well as state efforts I will describe shortly, puts us in a unique situation to turn efforts on Lake Champlain into a national model for environmental management and protection.

In virtually every instance the clean up and protection of the country's large waterbodies has been with significant federal assistance. This is true for the Great Lakes, for Lake Tahoe, and for numerous estuaries and bays -

Narragansett Bay, Chesapeake Bay and Puget Sound, among others.

We know we can save big waterbodies, like the Great Lakes, with huge expenditures of federal and state funds. But here we are in a unique position of being able to protect this world class body of water from further degradation, as opposed to having to expend millions of dollars to clean up past ignorance.

But to do this we need help from the federal Environmental Protection Agency. I urge you both to encourage the EPA to consider a Lake Champlain Program much like the one established for the Great Lakes or Chesapeake Bay.

Many of the pieces are here already. We have been busy in the two states and the province of Quebec. Governor Mario Cuomo of New York, my governor, Madeleine Kunin and the Premier of Quebec, Robert Bourassa, signed a memorandum of understanding last summer to promote cooperative management efforts on the Lake.

As part of that agreement, staff from the two states have pulled together a workplan outlining major program needs for the lake. I'd like to introduce a copy of that, along with our memorandum of understanding, into the record.

What I would like to impress upon you is that we are doing everything we can with the limited state dollars we have. In large part we rely on the help of those who love and use the lake. We have, for example, devised a way to collect phosphorus, chlorophyll a and transparency measurements that I think is a model for such work around the nation. We use well-educated volunteers, who tirelessly sample the lake every week from 31 different stations.

Despite our efforts, there is still much we do not know about the lake. We do know, to some degree, what goes into the lake from wastewater treatment plants, industrial discharges, and so on. We know some of the pollutants in the lake come from airborne particles. And in some cases, we know where pollutants go. PCBs, for example, are stored in the nice, fat, 25-inch trophy-sized trout you can catch on the lake. You can catch them, but Vermont and New York Departments of Health have issued a health advisory - you shouldn't eat them.

We know this because Vermont now samples Lake Champlain fish tissue every five years. The sampling frequency is dictated by our budget constraints. New York has a more aggressive sampling program, but samples from only four sites on the lake.

We have best management practices for agricultural runoff in Vermont, and federally funded programs to help us with these

programs, but we have no virtually no federal funding for any sort of toxics monitoring on Lake Champlain. We do not know where these pollutants come from or how they affect the lake's ecosystem. It is a sad commentary that our best management practice for toxics on Lake Champlain is to tell people not to eat the fish.

An EPA Lake Champlain Program, in addition to pulling together existing efforts on the lake, could help us with a base-line monitoring program for toxics and metals in the basin. Such a program would include air monitoring, bioassays, and sampling lake sediments and fish tissue.

In addition to encouraging EPA to sponsor a Lake Champlain Program, there are other places where your efforts can help protect the lake from non-point source pollution.

I am sure that Commissioner Albee, from the Department of Agriculture, and Commissioner Tim Burke from our Department of Environmental Conservation will talk more specifically about control of non-point pollution from agriculture, so I will not discuss this in detail.

I will add my voice to theirs however, to urge you to find funds for the 319 program of the Clean Water Act. As you know, there is currently no appropriation for this program. The alternative mechanisms for funding non-point programs are inadequate, and the funds are shrinking.

From the Vermont perspective, Lake Champlain is a key element in any non-point management program. The lake receives point and non-point discharges from nearly half of the state's land area, and from 60 percent of the state's population.

What I want to suggest are ways for you to help with other non-point pollution problems. I think as a rule when we hear "non-point source pollution" we tend to think of agricultural runoff and erosion. There are other types of non-point source pollution, however.

One such threat is that of exotic weed invasion. An existing federal program, a 50-50 cost share with the Army Corps of Engineers, helps us harvest Water Chestnut where it is a problem in the southern part of the lake. Because this noxious weed is an annual, not a perennial, we are slowly winning the battle, and in fact it appears that we may even be able to eradicate it from the lake. Unfortunately, there are insufficient state funds to match the federal dollars. You could help us by changing the federal match requirements.

We are also battling with Eurasian Milfoil in the lake. Sadly, this is a battle not so easily won. This aggressive perennial reproduces from tiny plant fragments, and is spread easily by accident. It clogs bays, tangles boat propellers, and makes swimming virtually impossible. It crowds out native underwater plant species. In addition to Lake Champlain, there are 20 Vermont lakes infested by this weed. This is a nationwide problem with no easy solutions. As a small state, we don't have the resources to do the research to find answers. National-level research to find solutions would aid not only Vermont but the rest of the country.

Shoreline erosion is yet another non-point source of pollution. As a state, we recognize the need to expand our statutory framework to protect the state's streambank and lakeshore environments. There is another way to solve this problem, however, a way that both protects lakeshore and improves public access. That is to purchase land outright.

Right now, of the 587 miles of shoreline in the two states and Quebec, less than 10 miles are public beaches. There are 30 boat launches on the Vermont side, with parking for 1,200 cars. Last year, there were about 50,000 boats registered in Vermont. Pressures from the New York side are even greater.

As a state we took an enormous step in the right direction last year when our Legislature appropriated $20 million for a Housing and Conservation Trust Fund. While not all of this money goes towards land acquisition, we did purchase one and a half miles of shoreline last year with help from this fund. There are, however, more parcels to purchase. During the Reagan years, the Land and Water Conservation fund has shrunk. You can help by supporting increased appropriations for this federal fund.

Earlier on I mentioned the agreement signed between New York, Vermont and Quebec on the management of Lake Champlain. At that signing, Governor Cuomo made a statement that I think is an appropriate charge for us as public officials:

"Until we understand that every day the world grows smaller, and every day our ability to isolate ourselves grows more palpably stupid....until Vermont, that has 60 percent of the Lake and more, and New York, that has 30 percent of the Lake and more, and Quebec, that has 3 percent of the lake and more, understand that there is only one interest, called the Lake, and the waters and beauty and the fish and the economy not of Vermont, New York or Quebec, but of the region, of the continent, of the world... you fail as a public official."

I congratulate you both for passing Governor Cuomo's test for public officials, and for having the vision to ask the question "What needs doing on Lake Champlain?" We are at a critical time where we can do something splendid for this beautiful lake, a lake that richly deserves our help.

U. S. Senate Committee on Environment and Public Works
Subcommittee on Water Resources, Transportation
and Infrastructure

Testimony of Ronald A. Allbee, Commissioner
State of Vermont
Department of Agriculture

June 28, 1989

PROBLEM ASSESSMENT

Any effort to address the issue of non-point source pollution of Lake Champlain must acknowledge agriculture as a contributor. In fact, the 1988 Water Quality Assessment, issued by the Vermont Agency of Natural Resources (305(b) Report), identified soil erosion, manure and fertilizer runoff as a primary contributor to non-point source pollution of surface waters. Farming is not a benign activity. However, the 1988 St. Albans Bay Rural Clean Water Program Report, issued by the Soil Conservation Service and the Vermont Water Resources Research Center, projects that 85% of the nutrient contamination of surface waters from these agricultural sources are considered as treatable. Treatable contamination sources are those which can be reduced through the use of appropriate management practices. The RCWP report goes a step further and establishes the relative contribution to non-point source contamination from various agricultural sources.

Of the treatable (manageable) sources:

42% is from field spread manure;
26% is attributed to barnyard sources;
13% to soil erosion; and
5% to stacked manure.

Although today's focus is the non-point source contamination of surface waters and Lake Champlain, we must not overlook the recognized relationship between surface water and ground water quality. The RCWP focus on nutrients as the primary concern for water quality is supported by the ground water monitoring efforts conducted by the Vermont Department of Agriculture. In sampling conducted since 1986, the Vermont Department of Agriculture has sampled 330 water supplies in agricultural areas and determined that 47% (156 wells) had detectable levels of nitrate. Although only 9% (30 wells) of those 330 wells exceeded the drinking water standard of 10 ppm, these results indicate that the presence of nutrients from agricultural sources in ground water is common in agricultural areas. If the issue is the protection and management of water quality as the overall goal, and not just the protection of Lake Champlain from NPS contamination, then even the 5% of manageable contaminants in surface waters attributed to stacked manure is not insignificant because, although those nutrients are not a predominant factor in

contamination of Lake Champlain, they are migrating to ground water. Therefore, I support the utilization of management practices and techniques that recognize surface water and ground water as an integrated unit and not as separate resources.

CURRENT EFFORTS AND ISSUES

Many federal environmental and crop payment programs are proposing requirements for best management practices (BMP's). In response to this trend, Vermont promulgated accepted agricultural practices (AAP's) in 1988. Rather than defining best management practices, Vermont's AAP's attempt to establish a minimum standard of performance that provides some protection of surface water quality through the use of methods and technology currently recognized by Vermont farmers. Vermont's AAP's establish restrictions on the storage and application of manure, pesticides and fertilizers within floodways and place limits on the application rate of nitrogen and phosphorus containing fertilizers per acre. The AAP's also establish vegetative buffer zones between agricultural lands and adjoining waters, require the use of anti-siphoning devices for irrigation and establish a maximum acceptable soil loss tolerance.

State and federal programs must recognize that the implementation of most best management practices are capital intensive. Any protection of water quality currently achieved through AAP's is done so without additional cost to the farmer or his community. If the transition from AAP's to BMP's is to be successful, then some structure of support for water quality protection must be provided to agriculture. Society benefits from the water quality protection efforts made by agricultural industries. Therefore, society should accept the responsibility of supporting the costs of management practices intended to protect resources such as Lake Champlain. Just as municipalities receive support for the construction of waste water treatment facilities designed to protect lakes, rivers and streams, so too should individuals - farmers in this case - receive support for initiatives which provide public benefit.

As demonstrated by the St. Albans Bay RCWP, improvements in the water quality of the tributaries feeding the bay have been made through the Agricultural Stabilization and Conservation Service and the Soil Conservation Service efforts to provide funding and technical management for manure storage facilities and land use contracts. During the course of the 11-year project, which is scheduled to end next year in 1990, 61 of 102 priority farms entered into contracts with the SCS. These 61 farms represent 76% of the critical acreage within the watershed. In looking beyond the St. Albans Bay project, continued success of water quality programs equivalent to those in St. Albans cannot be expected without the commitment for support

prospects for success appear to be diminishing rather than increasing. According to Vermont's 1988 NPS assessment, there are approximately 1,950 priority farms out of a total of 3,000 with livestock that are currently without management plans. If current funding levels are maintained, the assessment projects that by 1999 approximately 900 priority farms will still be without management plans.

If one considers that Vermont's agricultural industries generate $3 billion in product sales per year or approximately 1% of the nation's agricultural production, the funding provided for protecting water quality is far from commensurate with the magnitude of the effort required. Furthermore, if the numbers of population impacted by water quality efforts throughout New England, are considered, the discrepancy between funding and workload is more distinct.

CONCLUSION

Federal cost-share funding for the St. Albans Bay RCWP project totals $1.67 million. This represents the federal government's 75% cost-share. Contracted farms themselves have spent an additional $550,000 for BMP implementation. As I said earlier, the transition from accepted practices to best management practices will not occur without financial support. Despite that assertion, I am encouraged, however. The interest to implement improved management techniques that will result in improved production efficiency and profitability and benefit water quality is present within the agricultural community. I feel the interest in Vermont exceeds our resources to provide financial and technical assistance.

In closing, I emphasize that state and federal programs may attempt to mandate theand profitability and benefit water quality is present within the agricultural community. I feel the interest in Vermont exceeds our resources to provide financial and technical assistance.

In closing, I emphasize that state and federal programs may attempt to mandate the adoption of BMP's, but the most effective means of achieving improvements in water quality is through a societal commitment to facilitate agriculture's own efforts through financial and public policy support.

TESTIMONY OF TIMOTHY BURKE, COMMISSIONER
Vermont Department of Environmental Conservation
to the Senate Subcommittee on Water Resources,
Transportation and Infrastructure

My name is Tim Burke and I am the Commissioner of the Department of Environmental Conservation. I certainly appreciate your coming here today so that we can discuss non-point source pollution problems in the Lake Champlain Basin. I would like to begin by telling you some of the things that we have already achieved in our efforts to maintain and enhance the water quality of Lake Champlain. The projects I am about to describe represent a commitment on the part of Vermonters on the state and local level, as well as the commitment of federal dollars to these projects. All of our sewage treatment plants in the basin have secondary treatment. In addition, the communities of St. Albans, Alburg and Essex are doing phosphorus removal at their treatment plants. The sewage plants in Winooski, Shelburne, South Burlington and Burlington's three sewage treatment plants are all in the process of upgrading to do phosphorus removal. We are now moving into combined sewer overflow projects beginning with a 52 million dollar project for the City of Burlington. In the LaPlatte River, St. Albans Bay, Dead Creek and Lower Winooski areas, we have used Soil Conservation Service cost sharing to upgrade agricultural practices and install manure management systems. In the LaPlatte River and St. Albans Bay areas, 566 studies are now underway. These are ten year studies to

determine the effects of upgrading farm practices. In aquatic nuisance control we have spent 1.4 million dollars over the past 7 years to stop the advance of water chestnuts. These plants have been driven south to the area of Benson's Landing. That program will continue with the hope of eradicating the plants from the lake. In addition, we have used 500,000 dollars from the International Paper Company Settlement of the 1970's for various lake projects.

The 1988 Non-Point Source Assessment Report done by the Department of Environmental Conservation shows that non-point source pollution problems have occurred in all 17 major river basins in the state and that non-point source pollution is responsible for the majority of situations where the use of those rivers is impaired. The Lake Champlain Basin, covering 46% of the area of the state of Vermont, contains 68% of the river miles that were identified as impaired in this non-point source assessment. The major causes of these impairments are siltation and turbidity; nutrients, particularly phosphorus; stream destabilization; and flow alteration. All of these causes except flow alteration result in phosphorus accumulation and thus the eutrophication of Lake Champlain. Lake Champlain still supports good quality recreation and natural habitat in many areas, but eutrophic conditions and associated water quality problems exist in some bays and in the South Lake region. Excessive weed and algae growth limit use of the lake and alter the natural habitat. According to the 1988 assessment

approximately 13% of the lake's 174,000 acres in Vermont are considered impaired or partially impaired according to the State Water Quality Standards. These impairments are caused by excessive weeds, excessive algae growth or siltation. The Department has completed a lake user survey in an attempt to quantify the public's opinion of water quality conditions. Observations were made at 31 stations lake wide and concurrent phosphorus concentration samples were taken. The results indicate that a mean summer total phosphorus concentration of .014 milligrams per liter will represent a lake condition in which users would perceive high algae levels no more than 2 percent of the time during the summer. The results also indicated that most of Lake Champlain currently exceeds this concentration. A map indicating these areas is included with this testimony.

These existing water quality impairments are thought to come from many different point and non-point sources located in the 7 major river basins in Vermont and those in New York. These sources have washed nutrients, particularly phosphorus, and sediments into the lake through the decades. Phosphorus is critical because, as the limiting nutrient, its concentration is largely responsible for determining lake water quality. It is essential to begin reducing the phosphorus loading to the lake so as to slow or reverse the deterioration of the lake's water quality. The States of Vermont and New York are jointly proposing a lake wide sampling and modeling study to identify the

major sources of water quality impairments from both Vermont and New York. The two states have entered into a historic cooperative agreement to address lake issues in a coordinated and effective manner. The Lake Champlain Comprehensive Eutrophication Management Study is the focal point of the bi-state agreement. A Diagnostic/Feasibility Study is a important first step in the eutrophication management plan. The study will measure the phosphorus loads of each of 34 tributaries and 15 wastewater treatment facilities and the inlake conditions at 55 lake stations. The Lake model will relate the tributary phosphorus data to the water quality of each lake segment. This study can lead directly into the development of a basin wide phosphorus management strategy as was successfully done in the Great Lakes Region. The Lake Champlain Study has a total budget of about $903,000, $357,000 for the New York share and $545,000 for Vermont.

Vermont and New York, under the Clean Lakes Program, Section 314, anticipates receiving $100,000 each from FY 89 funds. Taking into account other sources of funding, a total of $319,000 is still needed to totally fund the study. We are optimistic that this additional funding can be obtained under Section 314, FY 90 funding, as recently indicated by the EPA. Once this Lake Champlain study is completed the various programs available to reduce phosphorus loadings to waters can be implemented in a prioritized and cost-effective manner. In particular, the Non-point Source Management Program, which we completed in 1988

and has been approved by EPA, sets forth programmatic and budgetary needs to address the various sources of non-point source pollution taking into account all federal, state and private programs. Lakes and rivers have been targeted for restoration under this program and appropriate programs identified are proposed. Additionally, the Vermont Legislature has requested a phosphorus reduction study that will identify the measures needed to reduce phosphorus loading to surface waters state-wide. These two documents will allow for coordinated reduction of phosphorus loading from both point and non-point sources to Lake Champlain. The cost of implementing the non-point source management programs state-wide is estimated at 31.8 million dollars for the first year, increasing to 41.7 million dollars by the third year. Existing and currently funded programs will cover about $20 million in the first year from a variety of federal programs and some state funding. This leaves $11.8 million unfunded increasing to $21.7 million by year 3. Since federal funding is currently unavailable under Section 319, an alternative means of funding the implementation of non-point source controls must be found if Vermont is to meet the requirements of the Clean Water Act and be able to adequately address the recommendations of the Lake Champlain Study. One suggestion we would ask you to consider is that funding authority be sought under the Great Lakes Commission, not only because of the similarity of the projects contemplated, but also because of the importance of the Lake Champlain as the Great Lake of the Northeast.

I would like to comment on the recommendation of this Administration as well as the previous Administration to cut funding for the construction grants program. It is our understanding that an agreement had been reached to phase out that program over an 8 year period giving the states authority to convert to a revolving loan fund. Based on the agreed upon funding levels, Vermont has made commitments to the combined sewer overflow projects which are needed in the State. We understand that Congress has moved to increase President Bush's budget request for this program back to the 2 billion dollar level and we applaud your efforts to guarantee adequate funding for this program.

I hope that you leave here today with the knowledge that the State of Vermont is committed to protecting and enhancing the water quality of Lake Champlain, that we are willing to commit what financial resources we have to the effort and that we need your assistance in securing the federal share of the monies required to protect the quality of this important national resource.

8

NONPOINT SOURCES POLLUTION, AND WATER QUALITY ISSUES
PERTAINING TO LAKE CHAMPLAIN
TESTIMONY

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON WATER RESOURCES, TRANSPORTATION AND INFRASTRUCTURE

June 28, 1989
John C. Clausen

My name is John Clausen and I am a Research Associate Professor in the School of Natural Resources at the University of Vermont. I would like to thank Senators Jeffords and Moynihan for the opportunity to testify on nonpoint source pollution in the Lake Champlain Basin. I am especially interested in this subject because I have had the opportunity to study agriculturally related nonpoint source pollution for the past eight years in the Lake Champlain Basin. There are other important sources of nonpoint pollution including silviculture, development, and mining. My remarks will be confined to agricultural sources.

Nonpoint sources of pollution in Vermont and New York are estimated to contribute over 80 percent of the phosphorus to Lake Champlain. This is important because phosphorus is the primary nutrient responsible for algal growth in the Lake. Nationally, the state nonpoint source assessments submitted to EPA in 1988 indicate that nonpoint source discharges impact nine times as many lake acres as do point sources. Three-quarters of the impaired lake acres in the United States are caused by nonpoint sources. Therefore, it is clear that nonpoint source pollution is a serious issue here in Vermont as it is across the nation as well as in Canada.

Today, I would like to discuss with you what we have learned about controlling agricultural nonpoint pollution in Vermont. I will then make a few concluding points, some with reference to Section 319 of the Water Quality Act of 1987.

We have been conducting several water quality studies since 1978. These include the St. Albans Bay Watershed Rural Clean Water Program (RCWP) project and the LaPlatte River Watershed PL83-566 project. Both of these watersheds flow into important and eutrophic bays of Lake Champlain. The St. Albans Bay RCWP is one of 21 experimental sites in the United States and one of five with comprehensive water quality monitoring. This project is a cooperative agreement between USDA-ASCS and SCS, the Vermont Agency of Natural Resources, the Franklin County Natural Resources Conservation District and the University of Vermont. The project is located about 35 miles north and involves about 100 Vermont dairy operations. The LaPlatte River watershed is located 10 miles south and involves about 60 farms. This PL83-566 land treatment project is a cooperative effort of USDA-SCS, the Winooski Natural Resources Conservation District, the Vermont Agency of Natural Resources, and the University of Vermont. These projects truely operate in a cooperative manner.

Our overall objective in these studies is to determine whether agricultural Best Management Practices (BMP) improve water quality. Although these studies are continuing, I would like to summarize the lessons learned to date:

1. Many BMP result in noticeable improvements in water quality. For example, storing animal wastes through the winter rather than daily spreading will save 15% of the applied phosphorus that used to runoff during snowmelt. Vegetated filter strips can reduce the amount of sediment and nutrients in milkhouse wastewaters by over 90 percent.

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2. The quality of streams draining agricultural areas will not likely meet state water quality standards. In one Vermont brook, which drains an intensively agricultural area in the St. Albans Bay watershed, the standard for dissolved oxygen has been exceeded from 21 to 46% of the time, bacteria 67-77% of the time, and turbidity 17 to 51% of the time. Even our so-called control watershed which needs no BMP's exceeds dissolved oxygen standards 1-8% of the time, bacteria 11-34% of the time, and turbidity 2-25% of the time. The water quality associated with this control watershed may represent what water quality is achievable in agricultural areas in Vermont.

3. The response of streams draining agricultural assess to BMP's may be extremely slow and certainly well beyond the milestones sought after in the Water Quality Act of 1987. After 8 years in St. Albans and 10 years in the LaPlatte, we are only recently witnessing water quality improvements, and they are not major. An exception has been substantial improvements in bacteria counts. However, we must remember that agriculture was initiated in these watersheds over 200 years ago by such people as the Allen's and we cannot expect changes in water quality as rapidly as for sewage treatment plants. We do not know how long it may take for stream water quality to improve to acceptable levels.

4. The second option is that more intensive BMP's are needed to show water quality changes. Watershed demonstrations are needed that can clearly show, to Congress and the public, substantive water quality improvements. We need to find out what is the best water quality we can achieve and still sustain viable agriculture.

5. Section 319 of the Water Quality Act of 1987, dealing with nonpoint source management programs, requires a final report to be submitted January 1, 1990 that identifies the progress made in reducing pollutant loads and improving water quality. However, grants for the implementation of Sec. 319 have never been appropriated.

In conclusion, if clean waters are a priority of this nation, additional measures are needed to improve the quality of our impaired bodies of water and maintain the quality of our satisfactory bodies of water. Senators Jeffords and Moynihan, I thank you very much for taking the time to consider the issue of nonpoint source pollution in the Lake Champlain basin.

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STATEMENT OF NED FARQUHAR
ASSOCIATE DIRECTOR
VERMONT NATURAL RESOURCES COUNCIL

NON-POINT SOURCE POLLUTION IN LAKE CHAMPLAIN

U.S. SENATE SUBCOMMITTEE ON WATER RESOURCES,
TRANSPORTATION, AND INFRASTRUCTURE

June 28, 1989

Mr. Chairman, Senator Jeffords, I am Ned Farquhar, Associate Director of the Vermont Natural Resources Council (VNRC), which has over 4,000 members interested in environmental quality issues in Vermont. We appreciate your interest in non-point source pollution issues in the Lake Champlain basin.

I won't reiterate any of the comments about the Lake's water quality, its international significance as a Biosphere Reserve, and its environmental sensitivity. Instead I will applaud you for focusing on the non-point source pollution issue and hope that today's meeting will help advance the cooperative, constructive pollution control effort just getting underway in the basin.

What are we going to do to protect this natural treasure -- indeed to improve it?

The answer to this question is three-fold:

* POLLUTION RESEARCH (SOURCES AND IMPACTS)
* TECHNICAL ASSISTANCE AND CAPITAL IMPROVEMENT FUNDING
* CONTINUED COOPERATION - STATE/FEDERAL, PUBLIC/PRIVATE, AND INTERNATIONAL

At this time VNRC does not advocate new laws or regulations to require pollution control measures in the basin. Although the non-point source pollution problem is very serious and needs immediate concentrated effort, the existing cooperative education and assistance program is the best avenue for response. We strongly believe that Vermont's agricultural industry needs active support and assistance to help it through difficult market conditions.

Probably the most useful thing that the federal government could do would be to revive the Lake Champlain planning and management effort conducted in the late 1970's by the New England River Basins Commission. Although this would not be specific to non-point source pollution control, the NERBC report (Shaping the future of Lake Champlain) provided excellent data, policy recommendations, and an action plan that could help guide today's effort toward improving Lake Champlain's water quality.

Pollution research (sources and impacts)

Experts agree that non-point source pollution is a major problem in the Lake Champlain basin. And because the largest portion of this pollution results from agricultural activities, the pollution is dispersed, diverse, and difficult to control. We recommend several areas of research, funded cooperatively by the state and federal governments.

Ecosystem studies. Often our research is focused on elements of the pollution problem. It would be useful to put some research funding into broader environmental studies that can show the interrelation of different types of pollution (including air and water), the trends in different types of discharges and uses, and the environmental dynamic in the Lake Champlain basin. Without more knowledge of the ecosystem impacts of individual pollutants and uses, we risk focusing on the wrong aspects of today's problems and missing important problems -- for instance atmospheric toxics.

Additionally, we need to improve our understanding and control of onshore land uses that affect the lake (sewer, pesticide runoff), and the effects of marina development and operation. In an ecosystem study these influences can be identified and management steps recommended.

Nutrients. The leading water pollution problem appears to be phosphorus. We were pleased when the 1989 Vermont Legislature passed a requirement for planning to upgrade Vermont's sewer plants for better phosphorus treatment (language attached). This could help control the point sources discharging phosphorus into the Lake Champlain basin, and it indicates Vermont's intent to spend money on resolving the phospohorus pollution problem.

But it also indicates a couple of other important points. First, the cumulative effects of phosphorus discharges (especially combined with pollution from other nutrients and toxics) aren't clearly understood. Second, there's not a great data base for deciding which tributaries, which non-point sources, deserve priority attention in a world of diminishing fiscal resources.

EPA's commitment to assist New York and Vermont in a phospohorus budget study will help. It is the kind of research assistance we need.

We also need to be concerned about the effects of other nutrients, including nitrogen. If these are allowed to build, and are not understood in a comprehensive study of the effects of nutrient enrichment, the lake could suffer from a "tag-you're-it" succession of non-point pollution problems.

Toxics. There's even less information available about sources and impacts of toxics. We know that they are showing up in the water, and we know that there are numerous hazardous waste sites, landfills, and other potential sources (including the atmosphere) in the basin. However, the primary sources and effects have not been identified. Any

management response will have to be based on such research and information.

Best Management Practices. The state, universities, and the federal government should work together to assure that the existing best management practices are optimally effective. It might be that adjustments in the BMP's will produce significant improvements in water quality protection.

Technical assistance and capital improvement funding

Best Management Practices. At this time the most effective method of controlling and reducing non-point source pollution in the Lake Champlain basin is through education and assistance for farmers. This effort needs considerably more funding and support from the federal government and the states.

In our review of the existing programs, it appears to us that it will take more than twenty years to implement best management practices on the Vermont farms in the basin at current levels of activity. Twenty years is too long.

VNRC has advocated increased state spending on information/ assistance programs, and we urge increased federal funding as well. Farmers are willing to participate, contributing some portion toward capital improvements and construction. We should accelerate the technical assistance programs to provide them more opportunity to address their pollution problems.

Funding should be made available either through existing agricultural programs or through new programs of the Environmental Protection Agency under the Clean Water Act.

Continued cooperation

The establishment of an EPA field office for Lake Champlain would help stimulate appropriate intergovernmental coordination. It is the concrete measure necessary to assure that federal water quality law is being implemented and to bring the state and federal agencies together on coordinated air and water quality protection -- for research, policy coordination, technical assistance, and enforcement. We urge the Committee to look into the possibility of establishing a Lake Champlain field office of the EPA.

Conclusion

Lake Champlain needs several protective measures:

* An EPA field office for coordination and enforcement
* Basin ecosystem analysis and management, including air, water, and land use
* Research of toxics, nutrients, best management practices
* Continued funding for technical assistance and capital improvement programs, in larger doses

Again, we commend you for giving attention to Lake Champlain today. It is a treasure of international significance, and your attitude toward its protection and enhancement is critical.

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LANGUAGE FROM SECTION 4, ACT 88, VERMONT SLA 1989:

Sec. 4. PHOSPHORUS REDUCTION PLAN

In furtherance of the state's water quality policies the secretary shall, by January 15, 1990 and after consultation with the water resources board, submit to the president of the senate, the speaker of the house, the senate and house of representatives' committees on natural resources and energy and institutions, and to governments of adjacent states and provinces, a plan for the reduction of phosphorus concentrations in direct discharges to the waters of the state. At a minimum the plan shall include:

(1) information on the effects of phosphorus on the state's waters;

(2) a maximum phosphorus concentration allowable in direct discharges to the Lake Champlain and Lake Memphremagog Basins. This concentration will be based on that achievable with commonly accepted phosphorus removal technology which shall be described in the plan;

(3) a process for determining appropriate phosphorus concentrations in direct discharges to all waters of the state, not included in subdivision (2) of this section, when necessary for the direct discharge to meet water quality standards;

(4) a process for determining a phosphorus concentration more restrictive than that provided for in subdivision (2) of this section when such restrictive concentration is necessary to meet water quality standards in the Lake Champlain and Lake Memphremagog Basins;

(5) an estimate of the cost of achieving the concentration proposed in subdivisions (2), (3) and (4) of this section, and impact on the state capital plan;

(6) a schedule and priorities for the construction or modification of discharging facilities necessary to meet the proposed phosphorus concentrations; and

(7) other information determined by the secretary necessary to support the plan.

Approved: June 6, 1989

JAMES C. DAWSON New York Chair
MARK A. McCULLOUGH New York Vice-Chair
JAMES A. GOLDSBURY Vermont Chair
ROBERT R. McKEARIN Vermont Vice-Chair
PETER S. PAINE, JR. General Counsel
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LAKE CHAMPLAIN COMMITTEE, INC.

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June 27, 1989

Testimony of Lori Fisher, Lake Champlain Committee to Senate Environment and Public Works' Subcommittee on Water Resources, Transportation, and Infrastructure.

The Lake Champlain Committee is a basin-wide 1,700 member citizens' environmental organization that has worked on diverse water and land-use issues throughout its twenty-six year history.

On behalf of the Lake Champlain Committee, I congratulate the Senate Subcommittee on Water Resources, Transportation, and Infrastructure for focusing attention on this issue, and appreciate the opportunity to make these comments.

One can not delve seriously into Lake Champlain issues without confronting non-point source pollution head on. By definition, non-point source pollution is a compound, complex problem. There is no one action which will constitute a complete, sensible solution. In the last quarter of the 20th Century we have reached a critical stage in Lake Champlain's history, a time of unprecedented use and demand, increasing shoreland and basin-wide development, and new indications of water quality degradation. The large number of issues facing the lake has itself become the central management issue.

Multiple and diffuse sources of pollution confront this lake; multiple and diffuse sources of pollution must be addressed in an integrated management approach. Our testimony will focus on agriculture, toxics, and land-use development.

A G R I C U L T U R E

Agriculture is integral to the scenery and cultural identity of the Lake Champlain Basin. Farming has created the open spaces which afford spectacular views of the lake and its surrounding highlands and mountains. Red barns, hay bales, and black and white cows are motifs of the Champlain Valley.

A key component of the region's rural "working" landscape, agriculture is also the most significant contributor to non-point source pollution in the Lake Champlain Basin. Soil erosion, manure, milkhouse waste, and fertilizer runoff are the primary problems.

Various federal programs provide financial assistance through the U.S. Department of Agriculture and technical support through the Soil Conservation Service to eligible farmers in priority watersheds. In Vermont, these efforts are enhanced by a strong cooperative relationship among these Agencies, the University of Vermont, Conservation Districts, the Vermont Agency of Natural Resources and various environmental groups. Agriculture is not as dominant a force in the New York portion of the basin, and assessment programs lag well behind Vermont's. The lack of a Water Resources Research Center at Plattsburgh State University has stymied data collection efforts.

In 1979, the first USDA Watershed Protection and Flood Prevention

Program (PL 83-566) in the country was initiated in Vermont's LaPlatte River Basin. Since that program's inception, seven other Lake Champlain basin watersheds have received some form of federal assistance. Ten additional Champlain watersheds have been identified as requiring NPS control measures but the necessary funds are not available. Relatively remote watersheds such as the Upper Otter Creek and Upper Mississquoi may become higher priorities in the future and also require funding.

Only about half of the basin's agricultural areas are currently eligible for accelerated federal agricultural aid. The reach of existing assistance programs is limited for a number of reasons:

1) **Federal support monies are tight and tend to fluctuate.** For example, although the Vermont Soil Conservation Service had previously received annual appropriations of between $300,000 and $400,000 for the Watershed Protection and Flood Prevention Program, they were able to access only $150,000 for the program during Fiscal Year 1988.

2) **All federal financial assistance is in the form of cost-sharing.** The programs with a 50% cost-share level (PL 83-566) have a much lower participation rate than the single project with 75% cost-sharing (the Rural Clean Water Program of the LaPlatte River Watershed). This indicates that many farmers are less able or less willing to shoulder the larger financial burden. The average participating farmer receives and contributes between $22 and $25,000 for non-point source (NPS) control measures.

3. **Federal priorities and funding for technical assistance have not remained constant.** Although the 208 planning process of the Federal

Clean Water Act Amendments identified ten additional Lake Champlain basin watersheds needing agricultural non-point source pollution control, funding for these projects has decreased and the flood prevention component of the program has become a higher priority than water quality improvement. Section 319 of the Water Quality Act of 1987 dealing with NPS assessment calls for a final report by January 1990. Grants for implementation of that section have never been appropriated.

The comprehensive monitoring of NPS control measures used in the St. Albans and LaPlatte River drainages during the past six and seven years, respectively indicate that the Best Management Practices supported by federal assistance programs do work; significant improvements in stream water quality and turbidity are evident. The Soil Conservation Service estimates that between 60 and 70% of all eligible Vermont farmers participate in the program. This figure is well above the national average, suggesting that basin farmers are generally eager to participate in cost-sharing assistance programs. Yet, for the reasons listed above, 850 farmers in the Vermont portion of the basin are not eligible for accelerated federal assistance. At least 600 of these farmers need to put in complete systems including waste storage facilities, milking center waste management, and barnyard improvements.

Approximately 1,000 Vermont farms in the Lake Champlain basin still need upgraded agricultural systems to minimize NPS loading. The total cost of implementing such a program would require $45 million in capital construction costs (that's $45,000 per farm with each farmer

paying 25 - 50% of the tab) and $30 million worth of technical support for educational information, planning, lay-out and design, and quality assurance assistance for a total of $70 million. Under current funding levels, it would take twenty years to get all 1,000 farms through the program! And an additional ten staff members for the Vermont Soil Conservation Service would be needed to meet the 20 year time-table.

This raises a policy issue of who should pay and how much. We talk earnestly in Vermont and upstate New York about preserving and supporting local agriculture. A non-regulatory approach appears to be effective but we need to reinforce present efforts with a consistent federal commitment to fund and staff on-going assistance programs. In short, we must reverse the trend toward dwindling federal funds for cost-sharing of agricultural non-point source control measures. We also need to carefully consider whether state assistance is to accelerate the program and shorten the 20-year time frame.

T O X I C S

The contamination of Lake Champlain water, biota and sediments by toxit materials (primarily trace metals and synthetic organic compounds) is a serious concern. Municipal and industrial discharges, waste disposal sites, atmospheric deposition, stormwater runoff, and urban and agricultural pesticide usage all contribute, but there is scant information about the magnitude of these loadings or the fate and effects of these materials within Lake Champlain's ecosystem.

Toxic substances are among the most difficult environmental problems to track, control and manage because of: the myriad of toxic

compounds that can be formed; the complex responses triggered by various toxic substances depending upon concentration levels; and the diffuse sources of toxic loading. We see, for example, pesticides from agriculture, polycyclic aromatic hydro-carbons in urban stormwater runoff, phenols and phthalate esters in landfill leachate, and PCB's and lead through atmospheric deposits.

There have been only limited attempts in the past to define the extent of toxic contamination to Lake Champlain's water, sediments and biota. Environment Quebec has recently collected and analyzed samples of water, sediments, plants, clams, and fish from both the Pike and Richelieu Rivers to determine the presence of toxic substances. Since 1982, New York has been monitoring water, sediment, and invertebrates gathered from Lake Champlain basin river mouths for the presence of selected contaminants. Tests using a common invertebrate to gauge the toxicity caused by exposure to Lake Champlain water are also being conducted.

Both Vermont and New York have begun to sporadically monitor fish tissue for contamination by mercury and selected organic compounds. Although the recent studies do not presently evidence widespread disruption of the Lake Champlain eco-system, the potential is there given the variety of priority pollutants within the basin and the presence of elevated levels of PCB's and mercury in Lake Champlain fish. The fish studies have prompted bi-state health advisories that recommend limiting the consumption of lake trout 25" or longer to one meal per month and none at all for certain risk sensitive groups such as pregnant women.

These monitoring activities on Lake Champlain Basin toxics have been confined to determining concentration levels in selected samples of fish. There has been no attempt to estimate whether or not these substances are adversely affecting the lake eco-system and we have not yet identified the sources of these substances to the lake.

A basin-wide toxic monitoring and research program is necessary if we are to make any headway in controlling priority pollutant loadings to the lake or in determining their effect on the lake eco-system. Research should consider properties of the contaminants; sources of the substances - including both new in-puts and in-place toxics such as the IPC sludge beds at Ticonderoga, characteristics of the basin since lake harbors and bays, basin reservoirs and other areas of limited circulation may tend to concentrate pollutants; and uses that are most vulnerable to or compromised by toxic loading.

The focus of such efforts should be on controlling persistent pollutants that may be chronically toxic to aquatic life and humans. Lake-wide needs include routine collection and analysis of fish for the presence of priority pollutants such as mercury, DDT and PCB's at sites suspected of elevated contamination levels as well as in open-water areas. Site-specific monitoring would involve analysis of sediments adjacent to hazardous waste sites or river mouths to aid in determining migration and accumulation patterns within the basin. Field investigations are needed to determine potential impacts of highly toxic pesticides and contaminants in urban stormwater runoff on biota. Assessments on the condition of the exposed eco-systems which have received substantial loadings of priority pollutants such as Burlington Harbor and Cumberland Bay, should be researched to determine responses

of exposed organisms to contaminated sediments.

The necessary comprehensive approach to toxic loading will not be made without federal support monies. Furthermore, since a number of North American studies have shown that atmospheric deposition is a dominant source of potentially toxic organics including PCB's, dioxins, and polycyclic aromatic hydro-carbons, the wellbeing of this lake hinges in part, on tougher National Emission Standards for Hazardous Air Pollutants (NESHAPS)

D E V E L O P M E N T

The Vermont and New York portions of the basin have undergone significant growth and development in the last few decades. Much of this activity is the result of the Lake Champlain basin's attractiveness and high environmental quality. In Vermont, residential growth has been the major contributor to increased urbanization in Franklin and Grand Isle counties. Chittenden County is experiencing the results of being one of the leading economic growth areas in the country. Commercial development in the forms of shopping centers and strip development have increased in Shelburne, South Burlington and parts of Colchester. Industrial land uses have increased in Chittenden and Franklin counties. Road widenings are occurring and new transportation routes are being developed in the Chittenden County area. The lake shoreline has also felt growth pressure leading to both residential and commercial development primarily in the form of new homes, conversion of seasonal homes to year-round residences and marina development.

Rural densities have increased rapidly in towns around Chittenden County's urban areas and in portions of Franklin and Grand Isle counties. Basin agriculture has declined as farms are consolidated or sold due to urban conversion pressures. From 1974 to 1982 Chittenden County lost 14% of its total farming acreage to development.

New York development has occurred more slowly than in Vermont, but there are recent indications of accelerated changes. In addition to Plattsburgh's commercial growth, significant new sub-divisions are proposed for Peru, Schuyler Falls, and Beekmantown - areas that do not have municipal sewage facilities.

Basin-wide development raises concerns regarding sewage disposal, water supply, erosion impacts of construction activities, loss of wetlands and critical environmental areas, and impacts from stormwater and urban runoff, and the overall carrying capacity of the lake.

Expanded transportation corridors on both sides of the lake, and Lake Champlain's location near the major urban populations of New York, Boston, and Montreal, has allowed for intensive recreational use on the lake. Every year more people discover its opportunities. The number of marina development and expansion proposals have exploded in recent years. Water quality concerns associated with these proposals include sewage and greywater discharges, gasoline and oil spills from fueling of boats and leaking underground storage tanks, petroleum discharges from motors, turbidity caused by propeller action near the lake bottom, fragmentation and transport of nuisance aquatic plants, and leaching of toxic materials from pressure-treated wood used for docks, toxic effects of TBT based anti-fouling paints used for boat hulls, and

shoreline erosion caused by boat wakes.

Currently there are nearly a dozen marina development or expansion proposals under review. If all are permitted we will nearly double the number of slips on the lake without considering the cumulative affects of such growth.

The huge demand for recreational access to Lake Champlain and the proliferation of development proposals point to a need to determine the carrying capacity for the system and establish a management plan that insures access, diversity of use, and a quality recreational experience while protecting lake and shoreland resources.

Lake Champlain water and land-use protection efforts are stymied by the lack of consistent review policies. There are over 224 different government jurisdictions at work in the Lake Champlain basin and presently there is no basin-wide institution with an effective mandate for providing a basin-wide focus on resource issues and problems. Laws, policies and regulations vary tremendously throughout the basin, particularly in the area of shoreland controls. Many communities lack any type of shoreland use plan. Current recreational issues illustrate this point where marina development is regulated for site-specific impacts while cumulative impacts go unattended. Often, even state-sponsored projects are narrowly focused: the sea lamprey control proposal, for example, lacks detailed consideration of the project's water quality, access, and growth implications.

If water resources are to be protected we must develop coordinated lake policies. Most pressing is a shoreland management act to

establish density, setback, and sewage disposal requirements. In addition, basin-wide policy is needed for public access, shore and island acquisition, commercial and recreational use of surface waters, viewshed protection both from and to the lake, and management of fish and wildlife resources

DATABASE NEEDS

Lake Champlain has many charms and many needs. Since the New England Rivers and Basins Commissions were zero-funded in 1981, there has been no on-going, comprehensive collection of water quality data on Lake Champlain. Faced with nearly a ten-year gap in data we can only "guesstimate" the health of the lake. We lack basic baseline information for informed decisions on lake and shoreland management. What little research that does happen on the lake tends to be site or project-specific and lacking an integrated "eco-system" approach to issues. Regulators therefore make decisions in a vacuum, with little emphasis on cumulative impacts, synergistic effects, or biological implications of proposed projects.

The states of New York and Vermont and the province of Quebec have made a commitment to increasing cooperation on lake research and management last August with the signing of the Memorandum of Understanding. The agreement was accompanied by an ambitious workplan outlining short and long-term objectives on matters of water quality, fish and wildlife management, solid and hazardous waste, air quality, growth and development, and critical environmental areas. Certain state commitments have already been made to meet some of the draft workplan's short-term goals, and additional funding recommendations are hoped to be part of program budget requests in both states, but it will

take millions of dollars to establish the required research and monitoring programs on this lake. Pressing needs include studies on toxics, eutrophication, and land and water carrying capacity. The technical reports associated with the NERBC efforts of a decade ago and the draft Workplan provide a decent framework for action.

Federal monies have been channeled to Chesapeake, San Francisco, and Narragansett Bays in recent years and federal funds are essential for protecting Lake Champlain's water quality. But when it comes to funding the comprehensive management and assistance programs needed, Lake Champlain falls into a black hole. Because it is the sixth largest, not one of the Great Lakes, Champlain is not eligible for the "big money" planning and management assistance programs covered under the Coastal Zone Management Act. And many of its monetary needs run well beyond the general allocations of the Clean Lakes Program which has a modest annual budget (threatened in recent years) of around $15 million. The patchwork quilt of funding applications that the two states recently assembled in an effort to gain $850,000 to develop a scientifically sound phosphorus budget for the lake and fill a large technical information gap in eutrophication management, is illustrative of the difficulties Lake Champlain has in attracting monies for comprehensive studies.

We believe that Lake Champlain should be included under the provisions of the Coastal Zone Management Act. This possibilty and other potential sources of funds should be investigated this summer. In addition the lake needs increased involvement from the EPA, of which the nearest field office is in Boston.

Lake Champlain is not just another local attraction prized by adjacent jurisdictions. Designation of the Lake Champlain basin and Adirondack Massif as an international biosphere reserve reinforce the lake's status as a unique resource not only to the states and province that share its borders but to the national and international community at large. There is a major difference between the Champlain - Adirondack Biosphere Reserve and previously designated reserves such as Yellowstone National Park or the summit of Mount Everest. The Lake Champlain Basin is not a wilderness, but a rural landscape with a history of centuries of human use and habitation. It is also a region struggling to maintain a healthy, harmonious balance between the use of its natural resources and the preservation of its ecological, historic and cultural integrity. Whether it reaches a point of equilibrium is largely dependent upon whether we can find the political will and adequate resources to address the issues at hand.

Again, thank you for focusing attention on Lake Champlain. We look forward to the follow-up activities associated with this hearing and to working cooperatively with you to find creative, long-term solutions to address the problems that have been raised.

Respectfully Submitted,

Lori Fisher
Lake Champlain Committee

Testimony of Alan McIntosh regarding non-point source pollution and Lake Champlain
Senate Sub-Committee on Water Resources, Transportation and Infrastructure
June 28, 1989

I am Alan McIntosh, Acting Director of the Vermont Water Resources Research Center in the School of Natural Resources at the University of Vermont. I thank Senators Jeffords and Moynihan for the opportunity to speak on the subject of non-point source pollution. As my training and expertise lie primarily in the area of water quality and toxic substances, I will address the effects of non-point source pollution on Vermont's surface waters.

It is clear that non-point source pollution is affecting Vermont's streams, rivers and lakes, although the full extent of such effects is unknown. Recent examples receiving attention include the contamination of Burlington's public beaches by bacteria carried in stormwater runoff and the issuance of health advisories in response to PCB contamination of Lake Champlain lake trout.

Some non-point sources are being addressed in Vermont. The fate of nutrients contained in runoff from agricultural lands is being investigated through federally-funded research at the University of Vermont, with Best Management Practices(BMP's) used to reduce pollution in many cases. Also, the effects of runoff from land-disposed sewage on pristine, high-elevation streams are now being addressed through a series of state-run monitoring programs. In most instances, however, the effects of non-point sources on Vermont's surface waters remain poorly defined. Ranging from acid aerosols and trace elements carried through the atmosphere to PCB's and other persistent organic contaminants in the sediments of Lake Champlain, non-point source pollutants represent a continuing threat to Vermont's waters.

I will focus on issues related to the quality of Lake Champlain during

the remainder of my testimony for the following reason: ultimately, pollutants such as sediments, nutrients and persistent toxic substances generated by non-point sources will accumulate in lakes and reservoirs. It is at these sites where long-term consequences may be most serious. Unfortunately, our understanding of how this mix of pollutants affects lakes is incomplete. The complexities of non-point source pollution are well demonstrated by the example of toxic substances in Lake Champlain.

This lake, the largest of its kind in the lower United States after the Great Lakes, is a vital resource to New York, Vermont, and the Province of Quebec. Lake Champlain supports a variety of uses, including water supply and recreation. Sport fishing is extremely popular, with the lake supporting more than 80 species of fish. The special status of Lake Champlain has recently been underscored by its inclusion in UNESCO's Man and the Biosphere Program. Lake Champlain is, for its size, remarkably free of point source discharges. Only one major industry disposes of its waste directly into the lake, and sewage treatment plants throughout the basin are in the process of upgrading their facilities to tertiary treatment. The threat posed to the lake by toxic substances emanating from non-point sources, however, is unknown.

Some non-point sources of toxic substances to the lake are obvious. For instance, pesticides such as atrazine and carbofuran may enter tributaries and hence the lake in runoff from agricultural fields. Trace elements such as lead and cadmium and petroluem hydrocarbons like benzo-a-pyrene accumulated on paved surfaces in urban areas may be carried into the lake during periods of heavy rain. Persistent organic pollutants like PCB's may be transported via the atmosphere into the lake's drainage basin from sources hundreds of miles distant.

Other, less apparent, sources may be significant as well. Leachate from

some of the 96 active and inactive landfills within the Lake Champlain basin may enter tributaries and eventually reach the lake. Such leachate may contain both inorganic and organic pollutants of concern. Runoff from some of the 34 designated hazardous waste sites within the basin may also affect the lake. Persistent pollutants such as mercury and PCB's deposited long ago in certain bays and harbors may still be active in the lake.

How serious a threat do these various potentially toxic pollutants pose to Lake Champlain? We do not presently know. While we are certain that PCB's have accumulated to high concentrations in Lake Champlain lake trout, we have not yet begun to assess the long-term consequences of the presence of these substances in the lake. The concern is not so much with overt toxicity; under present conditions, we are unlikely to see massive fish kills. More likely is the gradual loss of sensitive species through reduced reproductive capacity and impaired growth. Loss of key organisms may indirectly affect biota throughout the food web of the lake.

What is the status of knowledge concerning toxic substances introduced by non-point sources to Lake Champlain? Several generalizations can be stated.

1.Many uncertainties about the fate and effects of toxic pollutants within the Lake Champlain basin exist. Data on the fate and potential effects of pesticides and other toxics contained in such sources as stormwater and agricultural runoff are almost totally lacking. Even within the lake itself, with the exceptions of Canada's efforts on the Pike and Richelieu Rivers and the RIBS program in New York, no thorough, long-term monitoring programs for toxics have been conducted.

2.There are many, varied sources of toxic pollutants within the Lake Champlain basin. However, the nature of certain pollutants makes them less of a threat to various uses of surface waters within the basin. For example, vola-

tile organic compounds, such as trichloroethane, are often present in landfill leachate within the basin. Because such compounds may be expected to volatilize rather rapidly under most conditions, they are unlikely to pose a long-term threat to aquatic life, although they may represent a concern for potable water supplies.

3.Certain regions of the lake bear particular scrutiny. Concerns about these locations arise for three reasons: (a)hydrologic characteristics may enhance the accumulation of persistent toxic pollutants(river mouths, bays, etc.);(b) close proximity to sources of toxic pollutants may lead to elevated concentrations, particularly in sediments; and (c)key processes, such as fish reproduction, may occur in these areas. Thus, locations like Burlington Harbor and Cumberland Bay, for which all three of the above factors may be operative, are of particular concern.

How should we proceed? Implementation of a basin-wide monitoring program would be an important step in any effort to control toxic pollutants within the basin. In general, the focus within the basin's surface waters should be on those substances which are persistent and may be chronically toxic to aquatic life. While certain elements of a broad-scale program, such as that operated in the Great Lakes, might be appropriate, a more site-specific approach within the Lake Champlain basin would be advisable in general, given the likely uneven nature of pollutant distribution within the basin. Examples of each type of monitoring are discussed below:

(a)Routine collection and analysis of various sport fish for such pollutants as mercury, DDT and PCB's are highly recommended. Sites should include both areas suspected of having elevated toxic pollutant activity, such as Burlington Harbor and Cumberland Bay, and open water areas.

(b)Periodic analysis of sediments collected adjacent to hazardous waste

sites or from the mouths of rivers such as the Winooski or Saranac would be useful in determining patterns of toxic pollutant accumulation and movement within the basin.

(c)More intensive monitoring below specific non-point sources of toxic pollutants would be useful in establishing priorities for sampling within the basin. Data on concentrations of toxic pollutants in water, sediments and biota collected above and below such sites as landfills and intensively farmed areas could be used to rank the potential for contamination from such sources.

(d)The ultimate fate of many persistent toxic pollutants remains unknown. As assessment of the migration of key toxic pollutants within the Lake Champlain basin should be undertaken. The potential for food-chain uptake of certain substances should be investigated.

(e)Several non-point source pollutants, such as certain pesticides and various contaminants contained in urban stormwater runoff, have the potential to adversely affect biota within the Lake Champlain basin. Further research should be done to determine the significance of these sources within the basin.

I thank you for the opportunity to address this key issue.

THE STATUS OF WATER QUALITY IN LAKE CHAMPLAIN

WEDNESDAY, JUNE 28, 1989

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON WATER RESOURCES,
TRANSPORTATIONS, AND INFRASTRUCTURE,
Plattsburgh, NY.

The subcommittee met, pursuant to notice, at 2:16 p.m., in Clinton Community College, Plattsburgh, NY, Hon. Daniel P. Moynihan (chairman of the subcommittee) presiding.

Present: Senators Moynihan and Jeffords.

Senator MOYNIHAN. This is the hearing of the Subcommittee on Water Resources, Transportation, and Infrastructure of the Committee on Environment and Public Works.

I am honored to be joined today by my good friend and distinguished member, the junior Senator—he was the senior Representative—from the State of Vermont, Senator James Jeffords. He joined us this morning in Vermont and participated in a similar hearing there.

Senator, when you go from being the sole Representative to one of two Senators is that advised?

Senator JEFFORDS. I find that it is exciting to be in the United States Senate. I am able to work with people like yourself that I have admired over the years. I have found that the opportunity is there to get involved in more things in the Senate. We handle all sorts of problems. I'm enjoying that.

Senator MOYNIHAN. We are happy to have you.

Mr. McGee is here representing Congressman Martin. Mr. McGee, would you come forward?

STATEMENT OF ROY McGEE, REPRESENTING HON. DAVID O'B. MARTIN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. MCGEE. Senator Moynihan and Senator Jeffords, on behalf of Congressman Martin I want to welcome you to the 26th Congressional District of the State of New York.

We have approximately 100 miles of beautiful lake in the 26th Congressional district, and, of course, in Vermont they have probably about the same amount of shore.

Congressmen, as you know, the House is in session this afternoon and Mr. Martin is in Washington. He asked me to tell you that he is appreciative that your committee is taking interest in the water

quality here at Lake Champlain. He wants you to know how appreciative he is on that, and is offering his assistance in any way or shape.

He also mentioned that if I happened to have anything green I should put it on. I couldn't understand why.

Once again, Senators, welcome. We appreciate your being here, and I'm sure good will come from your work.

Senator MOYNIHAN. Thank you.

Senator JEFFORDS. I know David Martin, and I have had the opportunity to work very closely with David on environmental matters. He is a strong defender of the agriculture in the north, here, as well as the lake. I have the greatest respect for him, and just would like you to pass that on.

Mr. MCGEE. I certainly will.

Senator MOYNIHAN. Mr. Rennell?

STATEMENT OF HON. CARL RENNELL, MAYOR, CITY OF PLATTSBURGH

Mr. RENNELL. Thank you, Senators Jeffords and Moynihan. I really appreciate this opportunity to speak to both of you simultaneously.

I realize that you will be getting a lot of information, and much of it will be duplication, but I did prepare a brief statement.

Senator MOYNIHAN. All statements will be included in the record. You may go ahead.

Mr. RENNELL. Then I will dispense with the reading of the statement and simply state my concern and interest for Lake Champlain. It goes back to my boyhood days as I sat, when I was supposed to be picking blueberries for the family, watching the lake and the steamships. I know that may sound ancient, but this was in the 1930's. I do recall it well.

I have also enjoyed the lake in many other ways, as all of us who live on both sides have.

But as the pressures mount on the lake, we are all alarmed and alerted to the problems. So it was as a result of all these concerns and problems that are coming to the lake that a historic meeting was held last summer on the lake with the two governors of New York and Vermont. Out of that a Memorandum of Understanding was developed. Goals and objectives were established. And also committees on both sides were formed—advisory committees. Others will speak in more detail about this.

But we are at that point where we do need more and better information to make the decisions. We have very poor information. In fact, we don't have the information we need to make those decisions and solutions to the problems and to help us alleviate other problems in the future. This is where I'm coming from.

I also would like to mention a brochure on the *Philadelphia* published recently by a museum in Vermont. I am very interested in this project because as a boy I also watched the raising of the *Philadelphia*. I was perhaps ten years old, but I recall when the top of the mast was five feet below the surface of the water after almost 200 years of being submerged. The cannon ball that sank the boat was still lodged in the hull and is still lodged in the hull

in the Smithsonian in Washington, D.C. So I feel a very close relationship with the lake, as do—I'm not an exception.

I don't ask that you support the particular project that I included there, but I simply put that there so that others might know the historical significance of the lake and as a highway of commerce. This isn't the main reason we are here today, granted, but nevertheless it is very important information.

I feel that we must have a stewardship towards this lake—each individual municipality up and down the lake, both States, and the Province of Quebec—and, more importantly, the history as it affects the development of our nation. It is a national treasure. Because of that, I am asking you to consider funding those necessary studies.

Thank you very much for listening.

Senator MOYNIHAN. Next we will hear from Mr. Munroe from the New York State Department of Conservation. We welcome you. We will also be hearing from Mr. Glennon, the Executive Director of New York State Adirondack Park Agency; and Mr. George Davis, the Executive Director of the New York State Governor's Commission on the Adirondacks in the 21st Century.

Mr. Monroe, we have your prepared statement. You may proceed as you wish.

STATEMENT OF THOMAS MONROE, REGIONAL DIRECTOR, REGION 5, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Mr. MONROE. Senator Moynihan, it is a great pleasure for me to be here today. I have two versions of my testimony: one is the long version which you have before you, but in the interest of time I am going to read an abbreviated version of the full testimony.

The Lake Champlain basin has recently been recognized as an area of unique ecological significance warranting national programs dedicated to helping discover solutions to mitigate man's alterations of the environment. This official recommendation occurred April 26, 1989, through the United Nations International Biosphere Reserve Program.

Lake Champlain in all its magnificence as an outstanding natural resource is sensitive to impacts from human activities which do not respect state or international boundaries. The range of problems confronting the lake are vast and well-known to the numerous parties and agencies concerned with and involved with preserving it.

The predominant water quality problems affecting Lake Champlain include pollution eutrophication, nuisance aquatic plants, lake levels and problems associated with aquatic algae growth.

Like many other parts of this country, this area also faces environmental problems as a result of air pollution. Of primary concern in this region are the impacts of acidic deposition on our lakes and forests. We also continue to face a growing concern with the problems associated with transported ozone and air toxics.

Mr. Chairman, the Department would like to thank both you and Senator Jeffords for your continuing support in attempts by both New York and Vermont to address these serious problems through

amendments to the Clean Air Act. Now that the Administration is proposing legislation, I hope that we can work together to ensure that a comprehensive Clean Air Act reauthorization includes provisions stringent enough to help us deal with the air pollution problems affecting our major natural resources.

Certainly the case for amendments to the act to address acid rain has been established for some time. However, it is becoming increasingly clear to us that activities in other states and other regions of this country are now causing us concern with both ozone and air toxics. Last summer the State's Atmospheric Science and Research Center's ozone monitors on top of White Face Mountain, which has an altitude of 5,200 feet, detected violations of ozone standards on sufficient days to trigger a non-attainment designation for that pollutant. We share a similar concern regarding the impact of toxics transport.

Critical natural resource problems affecting Lake Champlain result from the recent rapid growth and development in areas bordering the lake in both Vermont and New York. A recent survey by the Adirondack Park Agency reports a 36 percent increase in the number of single family structures constructed between 1967 and 1987 in Clinton County and a 45 percent increase in Essex County. During the same period, both counties experienced a 34 percent decline in privately-owned forest land parcels.

Competing recreational events have significantly increased in intensity over the past few years as more and more people "discover" Lake Champlain. Existing marinas have long waiting lists of people looking for docking and mooring space and some have responded with extensive expansion plans.

Concerns for marina water quality impacts are often raised during state permit review processes.

Preserving significant ecological areas, wetlands and critical wildlife habitats will become increasingly more difficult and complex along Lake Champlain as the scramble for living space and recreational opportunities escalates. Additionally, inappropriate development on and near the lake shore threatens the visual quality of the lake basin.

Proper management of the tremendous fisheries resources, as well as the proposed sea lamprey control program is a matter of ongoing concern for both States.

New York State is in the midst of a solid waste disposal capacity crisis, as are all the States in the Northeast. The Department is pursuing closure of inadequately designed and operated landfills. Those which cause or contribute to the degradation of New York State surface water receive the highest priority for proper closure. In the areas of New York surrounding Lake Champlain there are 84 active landfills, 51 of which are currently under consent order to close, with another 23 likely to come under consent order soon.

The estimated cost of properly closing a landfill in accordance with the Department's Solid Waste Management Facility regulations is approximately $100,000 per acre. Small municipalities such as those in the Lake Champlain area may have difficulty meeting landfill closure costs and may require outside assistance to meet those costs.

Comprehensive oil spill prevention and cleanup programs to ensure that the lake is adequately protected from transportation spills and leaks occurring at facilities handling these materials are needed within the basin. There is a significant potential for spills of oil and hazardous materials into Lake Champlain and its watershed.

In order to begin to address these problems in a comprehensive way through inter-governmental cooperation and joint environmental management within the Lake Champlain basin, the States of New York and Vermont and the Province of Quebec have entered into a joint management and planning effort. On August 23, 1988, the governors of New York and Vermont and the Premier of Quebec met in the middle of the lake to sign a Memorandum of Understanding on Joint Environmental Management Programs for the Lake Champlain basin. The agreement put into effect a four-year planning effort to develop joint inter-governmental programs to preserve and enhance the Lake Champlain ecosystem through the exchange of information, prior notification and consultation, cooperative scientific research, and joint management efforts. The full text of the agreement has been provided to your office and is being submitted today.

Through the work of numerous staff of New York and Vermont agencies, a draft Framework for Joint Work Plans Under the Lake Champlain Agreement has been developed as a basis for cooperative management programs between New York, Vermont, and Quebec. This document serves as a basis for public discussion of the issues leading to agreement of priority for attention. The full text of the draft framework has been provided to your office and is being submitted today for the hearing record.

The fundamental need is to establish baseline planning information to provide for more informed, coordinated land use planning and decision-making by municipalities, regional planning commissions, and State agencies. That information will assist in identification of areas which should be protected through land use controls and/or acquired for future public use and enjoyment or protection of critical habitats.

It is clear that one element of any program to provide long-term protection to critical resources must include public purchase of lands. However, the ability of the States alone to purchase land essential to the public domain is severely handicapped. The $250 million in land acquisition funds from New York State's 1986 Environmental Quality Bond Act have already been largely committed to projects around the State and will be exhausted by 1990. Funds are needed to continue the purchase of environmentally sensitive lands—particularly critical habitats of rare and endangered species of plants and animals.

The Federal Government must play an increasing role in the habitat protection program through matching aid to existing state programs.

We can only estimate the extent to which Lake Champlain is used for recreational activities. One of the main objectives of the Lake Champlain Cooperative agreement work plan is to identify common criteria to be used in determining the impact of increasing

recreational demands. The eventual goal is to establish a recreational use area for Lake Champlain.

Certain types of development along the shoreline of the lake have the potential to impact the carrying capacity and the quality of the lake, as a whole.

Senator MOYNIHAN. Mr. Monroe, we have a five-minute rule. This is a very comprehensive statement.

Mr. MONROE. I will paraphrase some of the remainder, if I may.

We are looking for a program for interaction between the States within our regulatory processes so that there is an ability to communicate between us in writing regulatory decisions.

Two of the major activities in our area are the forest industry and farms. We have a Federal forest land study under way in the area that we are participating in. We feel that's very important.

There are a number of agricultural interests that we have, particularly with the management of runoff from agricultural activities into the lake.

Sea Lamprey control in the lake is a particularly critical issue that has been identified in recent surveys of people around the lake as the number one priority, so we are actively pursuing that in cooperation with Vermont and the U.S. Fish and Wildlife Service.

We are actively engaged in monitoring the levels of toxics and the sources of toxic materials that are present in the lake. They are not levels that are of intense concern, but there certainly is enough evidence that it is a matter that we need to be attending to.

We currently are pursuing a Federal clean lakes program seeking assistance in pursuing a phosphorus study leading to the development of phosphorus management on the lake and give us insight as to how we need to deal with those influences.

We are concerned, as I mentioned, about air toxics. We propose to install some additional monitoring equipment in that regard.

In closing, if I may, I'd like to quote from Governor Cuomo's remarks on the occasion of signing the tripartite agreement in the center of the lake last August.

> The one most important political, governmental ideal that we live with today is that we all need each other. Until you understand that it is one world, one place, one interest, we make no progress.
>
> You should have government where you need government, and this is a place where you need government. You can't leave it to the private sector, you cannot leave it to the business people, you cannot leave it to the residents and the owners to do the right thing by the lake or the right thing by the timber or the right thing by the air or the right thing by the rivers.
>
> There are too many individuals who will make mistakes, too many individuals will see only their own benefits. You must regulate whether you like it or not. This is an ideal illustration of the good uses of government—good government, where nothing else will work. And so the Government of Quebec and the Government of Vermont and the Government of the State of New York join together and say yes, here is a good place to use the authority given us by the people for a good purpose for all people.

I close with that quote.

Senator MOYNIHAN. Thank you, Mr. Monroe.

We are going to hear next from a representative of the New York State Adirondack Park Agency—the Executive Director. Most

people don't know that the Adirondack Park is three times the size of Yellowstone.

Mr. Glennon, please proceed.

STATEMENT OF ROBERT GLENNON, EXECUTIVE DIRECTOR, NEW YORK STATE ADIRONDACK PARK AGENCY

Mr. GLENNON. Thank you, Senator Moynihan and Senator Jeffords. Good afternoon. Thank you very much for holding this field hearing.

I am Bob Glennon, Executive Director of the Adirondack Park Agency. The Agency is an independent body in the New York State Executive Department charged by statute with master planning for 2.5 million acres of Forever Wild Adirondack Forest Preserve in the Park, with administering a land use planning and environmental impact assessment statute for the 60 percent of the six million acre park that is private land, and with serving as the forum for the development of State policy for the park. It is that last duty I would like to discuss today, and I will try very hard to do it within your five-minute rule.

Senator Moynihan, when your staff kindly called me to invite the Agency to testify, my first response was that I can't talk about Lake Champlain water quality, especially nonpoint source issues, as those matters are primarily and directly entrusted to the New York State Department of Environmental Conservation, from whom you have heard today. I told your staff that if I had a chance to speak for five minutes, I would rather speak of the issues facing the Adirondacks as it nears its centennial in 1992. I was told that was OK. If it isn't okay, please don't ask me who called me.

On reflection, Senators, nothing, obviously, could be more connected to the Adirondacks than Lake Champlain. We all know the story of Samuel DeChamplain using his arquebus in 1609, killing the Iroquois who confronted him and, it is said, changing the course of history by causing the Indians to side with the English.

Students of Adirondack history are familiar with the marking of the straightest and tallest trees along Lake Champlain with the King's marks for use as masts for His Majesty's Navy, something that galled the colonists.

Blithely putting over two centuries of bloody French, English, and American military history involving Lake Champlain from 1609 aside, marking those trees could be seen as the beginning of the lumberman chopping his inexorable way to the center of the Adirondacks by 1850, a year New York led the nation in timber production, seven years before Samuel Hammond, in "Wild Northern Scenes," said if he had his way he would draw a circle of 100 miles and throw around it the protecting aegis of the Constitution, make it a forest forever, where it would be a misdemeanor to cut a tree and a felony to clear an acre, where the old woods could stand always, as God made them, growing until the earthworm ate away their roots and the strong winds hurled them to the ground and new woods permitted to supply the place of the old so long as the earth remained.

Twenty-eight years later, in 1885, after a Commission chaired by Charles Sprague Sargent reported that the area was being reduced

by the lumberman to an unproductive and dangerous desert, New York put "Forever Wild" on the statute books.

In 1892 it created the Adirondack Park within which to concentrate forest preserve acquisitions, and in 1894, in Constitutional Convention assembled, the people of the State served notice a statute, entrusted in administration to bureaucrats and subject to the will of elected officials, was not enough. Forever Wild became part of the covenant between the governed and their government, where it has remained, not one word changed.

If you read the 1984 debates, you will come away convinced that they meant to buy it all. About that same time, Governor Roswell P. Flower, 1893, told the legislature that efforts to establish an Adirondack Park had been disappointing.

The efforts to establish an Adirondack Park, even now, after nearly a century, are still disappointing. That is not in any way to belittle the work of the Temporary Study Commission on the Future of the Adirondacks, which told Governor Nelson Rockefeller in 1970 that if the Adirondacks are to be saved, time is of the essence; that if at least 600,000 acres are not acquired or otherwise protected from development, the Adirondack Park, as we know it today, will vanish within a generation; and whose work gave rise to the Park Agency, the State Land Master Plan, and the Private Land Plan.

And, jumping ahead to just two months ago, that is not to belittle the work of dedicated officials in both Vermont and New York whose efforts led to international recognition of the Adirondacks and the Lake Champlain drainage in Vermont as an International Biosphere Reserve.

Many of our beloved Adirondack lakes are dead, but I don't think I need to argue the case for acid deposition legislation to you. Respected scientists say parts of our forests are dying for the same reason. Vermont has done magnificent work before EPA proving that even the visibility in the Green Mountains and Adirondacks has suffered as a result.

Similarly, I don't believe I need to argue the merits of the Chaffee-Udall American Heritage Trust bill with you. I'm sure New York State would love to see that pass. And, while I'm on the subject, New York State is most grateful for the revolving loan bill for sewage treatment plants and, I'm told, will—or perhaps has by now—pass the complimentary State legislation.

Whether we need leveraged buy-out legislation or just restoration of capital gains treatment to prevent another timber company from going the way of Diamond International is not something on which the Adirondack Park Agency, frankly, can comment intelligently.

I do want to pay tribute to Steve Harper of the Forest Service in Rutland, to the Governors' Task Forces from the involved states, and to the many people who have assisted in other ways, for the Federal Northern Forest Lands Study, due to report to Congress in September. All we can say at this point is that yeoman work is being done to assist Congress and State policy makers in assuring that the Great North Woods and a healthy timber industry remain. I commend the report to you, sight unseen.

Senator Moynihan, some years ago the Park Agency called upon you for help in a typical New York versus the Feds issue, and you gave it, for which we thank you. Congress had created the North Country National Scenic Trail across the park's midsection, and we feared Federal management contrary to, or in conflict with, Forever Wild and the State Land Master Plan. You clarified the legislative history in the Congressional Record, thus assuring that wouldn't happen, and we appreciate it. Would we be wearing out our welcome if we now turned to you again?

Let me mention two things which suggest an appropriate Federal gift to the Adirondack Park at its Centennial. Twelve years ago, in connection with site preparation for what its detractors called the "Olympic Prison" in Ray Brook, over 70 acres were cleared and grubbed. Not a tree, not a stump, not a blade of grass remained. Then it rained, and there are even those who think the bulldozers got down to the water table, removing 90-foot topographic variations. Ray Brook, once a lovely, clear stream, ran brown for days and days, carrying probably hundreds of tons of silt to Oseetah Lake, three miles away, and into Oseetah Lake Marsh, almost 500 acres of exquisite wetland and one of the few ring-necked duck habitats in the Adirondack Park. By the way, these waters drain to the Saranac, and the Saranac to Lake Champlain.

New York searched for ways to prevent such a thing from ever happening again. Now yours truly had recommended the Feds condemn the State lands which became the Olympic Prison site, because to do otherwise risked a lawsuit contending New York State was conveying away State Forest Preserve in violation of its Constitution.

The Plenary Powers Clause, Supremacy Clause, and Needful Buildings Clause all prevent the exercise of State jurisdiction in such instances absent a Federal retrocession of sovereignty. As a result, this almost wistful invitation was added to the Adirondack Park Agency Act in 1981: "It is hereby declared to be the policy of this state that new land use or development or acquisition of land by the United States within the Adirondack park shall conform to the land use and development plan and the master plan for the management of state lands so far as practicable, and to any further extent as the Congress of the United States may by law provide."

That's example one. Here is example two: as you know— and thank you for your letter—the Strategic Air Command will shortly begin low-level B–52 and FB–111 training flights over the Adirondacks, in places at 500 feet altitude. Marine helicopters want to touch down on our mountain peaks. F–15 "Strike Eagles" have completed one month of experimental low-level runs in the south central Adirondacks. Were the Adirondacks treated the same as a National Park, were our wilderness areas treated the same as Federal wilderness, those aircraft would have to fly at 2,000 feet, and that Federal policy is currently under review with an eye to tightening it.

What more appropriate gift to the Adirondacks at its centennial, a gift to New York State, which I heard described to a dozen foreign visitors yesterday as the crucible of conservation because of its creation of the Forest Preserve and the Adirondack Park, than a Federal consistency bill for the Adirondacks? As yet, another Adi-

rondack Commission struggles, this time perhaps with the nation watching, to make the Adirondack Park the bright and vibrant park New York State citizens want and deserve, the park our ancestors began to envision almost 133 years ago, perhaps Congress might consider this small repayment.

Thank you again for inviting me to testify.

Senator MOYNIHAN. Thank you, Mr. Glennon.

We will now hear from Mr. Davis.

STATEMENT OF GEORGE D. DAVIS, EXECUTIVE DIRECTOR, NEW YORK STATE GOVERNOR'S COMMISSION ON THE ADIRONDACKS IN THE 21ST CENTURY

Mr. DAVIS. Thank you. I appreciate the opportunity to appear before you once again, Senator Moynihan. Your leadership, particularly in the decade-long struggle against acid rain, is becoming legendary and is especially appreciated by those of us who care deeply for the Adirondack Park.

I am confident that Senator Jeffords will be right there beside you, as his predecessor Senator Stafford would have been, as the Clean Air Act is finally amended this year to deal with acid deposition.

But today the subject is not acid rain. It is water quality, Lake Champlain, and the Lake Champlain basin. I find this hearing both unusual and encouraging. It is unusual because we don't have an apparent environmental crisis yet in the Lake Champlain basin, and, unfortunately, our society and government seldom take notice until we have a full-blown crisis; and it is encouraging because it offers us a chance to examine impending threats and explore opportunities—opportunities that might best be seized through a local, state, national—and, in the case of Lake Champlain, international—partnership.

Governor Cuomo's Commission on the Adirondacks in the Twenty-First Century is convinced that we have the opportunity here in the Lake Champlain basin and throughout the Adirondack Park to live both in harmony with our natural environment and in economic dignity.

But I'm getting a bit ahead of myself. Perhaps I should first explain why the Governor's Commission on the Adirondacks is interested in Lake Champlain and Lake Champlain's water quality.

To begin with, approximately 25 percent of the six million acre Adirondack Park is within the Lake Champlain basin. The use of these lands will be a major determinant of the eventual water quality of Lake Champlain. And secondly, New York's common border with the State of Vermont in the middle of the lake forms the eastern boundary of the Adirondack Park for over 80 miles.

In establishing the commission, Governor Cuomo recognized that wa may be entering a new period in the history of the Adirondacks, an era of unbridled land speculation and unwarranted development that may threaten the unique open space and wilderness character of the region. I would suggest that these same trends threaten both the character and the water quality of Lake Champlain, as well.

The Governor asked us to define the park we would like for our children in the twenty-first century; to evaluate existing State programs and policies to see if they are adequate to achieve the type of park we envision; to consider what new programs and modifications in existing programs might be necessary to achieve the type of park we envision—including, I might add, whether there should be any Federal presence in the park—and to explore how a strong economic base, compatible with the Park we envision, might be achieved. A big challenge, indeed, but the kind of challenge we should all be undertaking: defining the kind of environment in which we want our children to raise their children.

The commission has no answers yet. It has not yet developed a single recommendation. But this much is clear: we must be bolder and more imaginative than we have been in the past.

We must look at water quality, air quality, land use, economic development, wilderness, biological diversity, recreation, and scores of other topics not as independent issues for which we can identify a goal and make a recommendation or two. We must look at all of these elements and realize that they are interconnected pieces of our biosphere, our home.

I ask that you and your subcommittee take a similar approach as you study the issues concerning Lake Champlain water quality. Consider shoreline development. Consider sewage disposal methods. Consider changing land use in the uplands. Consider recreational, domestic, and industrial uses of the lake. Consider the findings of the Forest Service's Northern Forest Lands Study to be released this fall. Consider the findings of the Adirondack Commission to be released in October. And consider the recommendations of the Adirondack Commission to be released next spring.

Although the commission has made no specific recommendations yet, it is already evident that New York State cannot protect the Adirondack Park alone. For instance, the park's open space ambience and its economy are both dependent to a great degree on large industrial forest holdings. The break-up of these holdings would threaten the very heart and soul of the Adirondack Park, and yet the sale of these holdings is exactly what will be the result if leveraged buy-outs continue in the timber industry.

The State can regulate changing land uses and it can purchase more lands, but if corporate raiders continue to run free, we stand to lose well over a million acres of commercial forest land in the park.

We don't pretend to be experts on securities law, but we have seen the results of takeovers and "greenmail" when applied to commercial forest lands, whether Pacific Lumber's California redwoods or Diamond International's northern hardwood forests right here in the Adirondacks. And the results are not what we want for our Adirondack Park.

We will continue to fight for the protection of the Adirondack Park from this end, but we ask your assistance in Washington to put some brakes on corporate raiding where the effect is to convert the environment and natural resources on which our society's future depends on the short-term gains for greedy individuals.

It is also evident that preserving our rural environment and economy will require continued purchase of land and less than fee title interests in land such as conservation easements.

To enable us to do so, we ask for your enthusiastic support of S. 370, The American Heritage Trust Act. This legislation will assist states in protecting critical landscapes, such as the Adirondack Park, in the way we feel will best accommodate all State interests. In the Adirondacks, it will allow us to retain forestry and farming as a way of life, as well as preserve delicate natural resources and recreational areas.

Two months ago this week, the entire United States' portion of the Lake Champlain basin and the entire Adirondack Park were designated as an International Biosphere Reserve by the United Nations Educational, Scientific, and Cultural Organization. As a result, the eyes of the world will be on us as we attempt to achieve human dignity, sustainable development, and harmony with our natural environment.

With your advice, assistance, and leadership, we believe we can succeed.

Thank you.

Senator MOYNIHAN. Thank you, Mr. Davis, for a very thought-provoking statement.

Mr. Monroe, I have a question that I ask of you. Down in the Hudson River there is a spot where the General Electric Company deposited great quantities of PCBs. Ten years ago I got money appropriated to clean up PCBs and get them out of the Hudson River waters. Ten years ago we got the money, and the PCBs are still in there. How come?

Mr. MONROE. I'm sure you're probably familiar with the issues.

Senator MOYNIHAN. No, I'm not. You asked for the money, and I got you the money in the last decade.

Mr. MONROE. There has been a decade of effort. The first effort foundered through a court proceeding following a siting decision by the Hazardous Waste Site Review Board. The local zoning prohibited the activity. The State felt we were exempt from the local zoning prohibition, but the court found otherwise. That got us back into a re-application process whereby we selected another site. That application was put into the regulatory process.

The Commissioner's decision coming out of that proceeding was that we are now on the threshold of some new technology. There is also a preference for the original site from an engineering and geological perspective. And we have recently been given an opening to explore the use of that site, so we are back into reexamining the process of removing those PCBs.

The project now, as I understand it, intends to remove more PCBs than the original project, but it has been a very frustrating experience.

Senator MOYNIHAN. Will it take another 10 years?

Mr. MONROE. It is one of those activities——

Senator MOYNIHAN. The problem started 13 years ago.

Mr. MONROE. The original problem of removing——

Senator MOYNIHAN. But the conservation method that ought to be applied is that this has to be done by a time standard which is

practical. That's been going on for 10 years, and it should be over with by now.

Mr. MONROE. I couldn't agree with you more, sir.

Senator MOYNIHAN. People can't eat fish from the river.

Mr. MONROE. I share your frustration, and I hope we will be able to——

Senator MOYNIHAN. You will be able to come to an agreement.

Thank you very much for those statements.

I do have one further question. Does the term "Forever Wild" appear in the Constitution?

Mr. GLENNON. No, sir.

Senator MOYNIHAN. There is no clause that says "Forever Wild."

I just want to thank Mr. Davis for pointing out that it is a lot easier to work on a problem before it happens.

Did you have something you'd like to say about the protected shore? We were talking about that this morning. The Vermont shore is much more developed than the New York shore. We wonder if that has anything to do with the park?

Mr. DAVIS. Unfortunately, we may catch up with Vermont at the rate things are going. Our shorelines, at least within the Adirondack Park, are being developed very, very fast—private shorelines that are accessible by boat, in particular. That is the result of failure to get new retrictions in the Adirondack Park Agency legislation recently and three specific compromises that were made to get the APA legislation passed 15 years ago; each of those compromises weakened the original shoreline protection recommendations that were based on natural resource constraints.

One of the specific questions Governor Cuomo asked us was: What can we do to protect the shorelines of the Park? I hope the next time you visit us that the New York shoreline isn't as developed or more developed than Vermont if we're lucky.

Senator MOYNIHAN. We don't have to be lucky. We have been hearing from our fellow New Yorkers, and I have been meeting with the county officials and town officials on both shores. We are looking for recommendations.

Senator Jeffords?

Senator JEFFORDS. We are interested in what is going on. Vermont is very interested.

I have a couple of questions.

Mr. Monroe, where are you on funding for the Sea Lamprey control project? I was told that I should ask you that question, so I am asking.

Mr. MONROE. There are two aspects to that that are currently being deliberated now. The first is the permitting process, and the second is the funding provision. As of the time that we now speak, there have been no funds specifically appropriated for the project. It is hard for me to judge, at this juncture, whether the legislature is going to allocate funds before the regulatory process is finalized or whether the converse is true.

So right now we are hopeful that the regulatory process will be completed shortly. It is similar to the situation here with the PCBs. It goes on and on. We are hopeful to have a decision soon.

Senator JEFFORDS. I appreciate that.

Mr. MONROE. Also, I am concerned about EPA's involvement in the lake. That's an issue of shared funding from the State activities that are comparable. In return, we have a grant application before us, as testimony indicates, for the Environmental Protection Agency for a start in a phosphorus study. But that's a New York effort.

What we really would like to move into is joint efforts and be able to receive shared funding from the States and from the Environmental Protection Agency to carry out these kinds of studies. Apparently, there is a $100,000 ceiling on funding under the Clean Lakes Act, and we have an application before them, but that is for the New York side of the lake. We need some Federal change in that in order to get the Lake Champlain a different funding source. That's something that I think should be looked into. As we speak, I don't have any specific proposals for you in that regard. It certainly is a question that we need to come to some arrangement on.

There was an earlier approach to establish a commission. It is a little premature for me to comment on that because the dialogue under the tripartite agreement has not advanced to that point, but I think it has become clear to many of us that some sort of Federal sanction to this bi-state cooperative agreement is very necessary for it to function fully.

We're looking at models such as the Lake Tahoe experience and the Chesapeake Bay experience as models that we can kind of use to see what applications can be looked at.

Senator JEFFORDS. We appreciate that. What is going on with your nonpoint efforts? I really don't know whether you have much of a effort on this side of the lake.

Mr. MONROE. A large part of that is non-regulated in the sense that discharges from agricultural operations are not regulated in the sense that we are able to regulate discharges from industrial operations. There are only guidelines, and it is a matter of concern to many of us. It needs work.

As I indicated, there is a large agricultural industry in this area. I think the total of agricultural products is almost $50 million a year in the area. That is significant. A large portion of the area is in agricultural use.

But we do need to have additional abilities to work with our farmers to establish practices while maintaining the viability of our agriculture and not compromising the lake water quality from those operations—fertilizers, pesticides.

Senator MOYNIHAN. They have seen some success on the other side.

Mr. MONROE. I think they are ahead of us.

Senator JEFFORDS. One final question on the dispatch of the sludge contaminants. An earlier decision was made a couple of years ago that that ought to be left in the lake. Have any studies been done to determine as to whether or not that was the correct decision? What is happening?

Mr. MONROE. There are no studies that I am aware of.

Senator JEFFORDS. And the monitoring of the present discharge from the plant?

Mr. MONROE. That is continuous.

Senator JEFFORDS. That is continuous?

Mr. MONROE. The pollution discharge elimination system permanently regulates the discharge.

Senator JEFFORDS. Who monitors that?

Mr. MONROE. The day-to-day monitoring is done by I.P. with instrumentation that is required, with the Department inspecting that information on a regular basis.

Senator JEFFORDS. Thank you.

Senator MOYNIHAN. Thank you gentlemen very much.

And now we will hear from Mr. Dawson, who is a Professor of Environmental Sciences at the State University of New York, Plattsburgh; and Mr. Plumley, who is a Park Specialist with the Adirondack Council; and, finally, we are going to hear from Mr. Wayne Byrne.

Mr. Dawson, please proceed.

STATEMENT OF DR. JAMES C. DAWSON, PROFESSOR, CENTER FOR EARTH AND ENVIRONMENTAL SCIENCE, STATE UNIVERSITY OF NEW YORK, PLATTSBURGH

Dr. DAWSON. Good afternoon, Senator Moynihan and Senator Jeffords.

It is a pleasure for me to be able to have a few minutes to present you with my thoughts as a scientist on Lake Champlain water quality issues. Thank you very much for taking the time——

Senator MOYNIHAN. Can I interrupt?

Mr. DAWSON. Yes, sir.

Senator MOYNIHAN. I'd just like, for the record, to ask what your field is?

Dr. DAWSON. I have earned a Ph.D. in geology.

Senator MOYNIHAN. Geology?

Mr. DAWSON. Yes. I also have a minor in oceanography and geophysics, and have spent about 18 years studying water quality issues on Lake Champlain. Currently I am on leave from the State University of New York to the Commission on the Adirondacks in the 21st Century.

Thank you both for conducting these hearings on Lake Champlain and for giving me the privilege of testifying.

By any standards, Lake Champlain is a very large and complex lake. It is long, narrow, and deep. Its surface is divided into the main lake and four sublakes, each of those sublakes has its own water chemistry and circulation characteristics, and the volume of water transport between the sublakes and the main lakes is very restricted.

The shores of the main lake are deeply indented with bays, so that the lake has an unusually long shoreline of about 600 miles.

The lake also, in comparison to other lakes, has a fairly high, 17:1, drainage basin area to lake surface area. This is reflected in the significant amount of agricultural land that exists in the basin.

The major use of the lake today is for recreation. The complex geography of the lake has produced a myriad of islands and headlands that are set in a pastoral valley that makes it ideal for that purpose. This pastoral setting is undergoing change as more and more people become aware of Lake Champlain as a resource.

Over the last decade, a broad consensus of support has emerged for the concept that Lake Champlain is a resource that needs protection. For example, in the late 1970s the New England River Basin Commission conducted a massive Level B study that produced over 30 technical reports. I served on the Plan of Study Committee and several of the technical committees for that study.

Most recently, the States of New York and Vermont signed the agreement on environmental cooperation on the management of Lake Champlain. UNESCO recently designated a Champlain-Adirondack Biosphere Reserve. This designation recognizes the region as a representative area within the large Lake-Forest Biogeographical Province that stretches along the Canadian border from Lake of the Woods, Manitoba to New Brunswick. These activities and many others demonstrate that our elected officials, our visitors, and increasingly our scientific community is concerned about the future of the lake.

This afternoon I would like to discuss conventional water quality parameters, including such things as nutrient analysis, circulation studies and temperature profiles, and a few words about toxic parameters, including heavy metals and halogenated hydrocarbons. In each case, I will review what we know and what we need to know.

In terms of conventional water quality parameters, the Level B Study brought together virtually everything that was known in 1979 about the water quality of this lake in a massive report by Dr. Glenn Myer and Dr. Gerry Gruendling at the State University of New York at Plattsburgh. Much of what they described was based on the work of Dr. Ben Henson and Dr. Milt Potash at the University of Vermont in the 1970s and by Dr. Myer and Dr. Gruendling themselves.

The Level B Study concluded in 1979 that Lake Champlain is receiving an excess of nutrients. The near-shore zone shows symptoms of phosphorus enrichment. Measurements of water clarity, phosphorus, and chlorophyll show high trophic index levels in St. Albans Bay, Burlington Bay, Shelburne Bay, Cumberland Bay, Kings Bay, and Bulwagga Bay. The total loading of phosphorus to Lake Champlain ranged from 536,000 to 804,000 kilograms per year. Of this, about 48 percent was attributed to municipal and industrial point sources, and about 52 percent was attributable to nonpoint sources. These percentages vary somewhat for each of the tributaries to Lake Champlain.

Since the Level B Study, the State of New York has sampled three conventional parameter stations: at Champlain, New York, on the Great Chazy River, in the Main Lake, and at Putnam Creek in South Lake until 1986. The State of Vermont has conducted a lay monitoring program that began in 1979 and which currently looks seasonally at 28 stations on Lake Champlain. Most recently New York, as part of its state-wide rotating intensive basin survey program, conducted a two-year study of Lake Champlain. That report should be available this fall.

This fall the State of New York will conduct a conventional parameter study on Cumberland Bay. There will also be a toxic study on the Little Chazy River and some conventional parameters will be analysed as a part of that study.

You were talking, Senator Jeffords, about the Soil Conservation Service work in Vermont. This year in Clinton County, NY, the Soil Conservation Service conducted a mail questionnaire survey of key informants in the county to locate nonpoint source pollution problems.

The Level B Study also looked at nonpoint source problems in two of the major drainage basins within Lake Champlain, the Corbeau Creek-Great Chazy-Little Chazy river in New York and the LaPlatte watershed in Vermont. New York did not follow up or continue that study but on the Vermont side, the LaPlatte rivershed study was continued by the Vermont Water Resources Research Center. The National Park Service has completed a management survey, that reviewed institutional arrangements and resources in the Boquet River, but did not do chemical analyses.

We can summarize our knowledge of conventional parameters by saying simply that the studies to date have had a very limited scope. More recent studies have been limited as part of statewide surveys or limited by the lack of availability of volunteers and funding. There exists a need for a comprehensive study to accurately determine the extent and cause of known eutrophication in the near shore and embayed portions of Lake Champlain. This includes the need to improve our understanding of the phosphorus cycle of the lake, because this likely is the limiting factor for algae growth.

As you know, the States of New York and Vermont have submitted a detailed proposal for funds from Regions I and II of the Environmental Protection Agency to conduct a diagnostic feasibility study to measure phosphorus loads and develop, for the first time ever, a whole-lake phosphorus model. That study requests $1.5 million, and I strongly urge you to do anything you can to support that request.

Briefly, I wish to discuss toxic water quality parameters. New York has had to issue health advisories limiting the eating of lake trout longer than 25 inches caught anywhere in Lake Champlain to a maximum of one meal per month. Similarly, brown bullhead and American eel caught in Cumberland Bay are limited to one meal per month. These advisories are part of a statewide process that looks at virtually all of the lakes in the State, and I might add that Vermont has issued similar advisories.

Senator MOYNIHAN. Could I ask one question?

Dr. DAWSON. Yes, sir.

Senator MOYNIHAN. I'd like to ask specificly about the type of toxicity.

Dr. DAWSON. I was going to say that the contamination in fish appears to be the result of PCBs in the food chain, but I regret to say that we do not know definitively where those PCB toxins are coming from.

Senator MOYNIHAN. If we knew where they were coming from and you got the money, would you do something?

Dr. DAWSON. I would do everything in my power as a scientist, sir, to encourage the proper authorities to do what has to be done.

Senator MOYNIHAN. Thank you.

Dr. DAWSON. New York has monitored two toxic parameter stations in the Champlain basin, one on the Richlieu River at Rouses Point, and one on the Great Chazy River at Champlain, New York.

These toxic studies looked primarily at heavy metals, zinc and nickel on the Richlieu River and mercury at Champlain. It is interesting that in 1986 they only did three analyses and one, the zinc measurement on the Richlieu River, exceeds the NTS Department of Environmental Conservation's own limit of protection of aquatic life.

As a result of that, they decided to conduct the rotating basin study that I mentioned earlier. This study has produced over 150 data sheets that will be released this fall. The rotating basin study is looking at conventional parameters, heavy metals, and volatile halogenated indicators.

Personal observations among people in the Department have noted declines in amphibian and reptile populations in the Little Chazy River. In response to this, the Department is conducting analyses of samples from the Little Chazy. This study will focus on changes in land use and on new uses of agricultural pesticides in that river basin.

The results of these toxic studies serve as indicators. They alert us to possible public health concerns but they are not comprehensive by themselves. These studies do not provide information on loadings or trends, and they do not tell us anything about the chemical fate of loadings. There is a severe need for more comprehensive information.

I would like to suggest three necessary study programs. First, a detailed monitoring program that would analyze the indigenous fish, such as shiners and darters and selected sport fish for a range of toxic parameters would be very informative. This study should be combined with analyses of waterworks intakes, bathing beaches and selected additional sites. Such a comprehensive study—and remember, when you do an analysis for something like atrazine you're talking about as much as $2,000 per sample—would cost up to $500,000 and should be followed by a more selective monitoring program to track the efficiency of any remedial action that was necessary. Researchers from the university sector would certainly follow up such a study with applications for funding to study fate and transport of selected toxic chemical species in the lake.

The second study I propose would determine trends in toxic loadings from the 1950s to the present—this gets to some of your previous questions, Senator Jeffords. Trends could be determined from a core sampling program conducted at selected industrial sites, including Ticonderoga, Rouses Point, Plattsburgh, Burlington and perhaps a couple of other sites. Cores should be cesium-dated and analyzed for PCBs, dioxin, and heavy metals. Such a study would cost $300,000, but it would provide the first information available on the trends of toxic loading at these important Lake Champlain sites.

The third toxic study I suggest is an analysis of toxic loading from aerial deposition.

Senator MOYNIHAN. We have seen this with PCBs.

Dr. DAWSON. It is important to establish air monitoring stations at a few carefully selected and potentially sensitive sites on Lake Champlain such as near the Four Brothers Islands. Analysis of PCBs, dioxin, and heavy metals should be coordinated with studies of fish, water samples, and cores. The stations in such a study

should be monitored for three years and the study would cost about $200,000. The data it would provide, would help give us an understanding of the toxic loading budget of Lake Champlain.

I will omit the section that describes several specific Lake Champlain water quality studies. Most were conducted in conjunction with specific project proposals. Some of these project studies have been significant. None however are a substitute for the need for the more comprehensive conventional parameter and toxic parameter studies I have suggested to you.

In general terms, the environmental health of Lake Champlain is what I call "guardedly good." I say "guardedly good" because we do have indications of excessive phosphorus loading and we do have some preliminary indications of toxic concern.

I also say "guardedly good" because our scientific understanding of the loading, transportation, and chemical fate of both conventional and toxic species in Lake Champlain is embryonic.

To protect this resource, we must understand it to the extent that scientists are able to. I do not urge that we study it to death. I do not urge that at all. Rather, I urge that we significantly step up our scientific research and monitoring so that our human activities can continue on the lake intelligently and safely.

This testimony specifically requests your support for the following types of studies: (1) a phosphorus diagnostic feasibility study to cost $1.5 million; (2) a Lake Champlain toxic parameter study to cost $600,000; (3) a toxic trends core study to cost $300,000; and, (4) an aerial toxic monitoring study to cost $200,000. Scientists need $2.5 million to study Lake Champlain water quality in a reasonable way.

My only caveat on this testimony is that these studies are part of a much larger needs package that is partly outlined in the Framework Study that Tom Monroe's testimony describes. Please consider this testimony as a complement and the expansion of that Work Plan.

Thank you very much for this opportunity to present our scientific needs.

Senator MOYNIHAN. Thank you, Mr. Dawson.

Mr. Plumley?

STATEMENT OF DANIEL R. PLUMLEY, PARK SPECIALIST, THE ADIRONDACK COUNCIL

Mr. PLUMLEY. Good afternoon. I'm Dan Plumley, a Park Specialist for the Adirondack Council, on whose behalf I offer the following comments.

The Adirondack Council is a citizen advocacy group with 12,500 members dedicated to protecting the character of the Adirondack Park. We also represent the Adirondack conservation interests of four national organizations, including the Natural Resources Defense Council, National Audubon Society, Wilderness Society, and the National Parks and Conservation Association, with a combined membership of approximately one million citizens.

I want to thank Senator Moynihan and Senator Jeffords for having the foresight to conduct this hearing on issues of concern to Lake Champlain.

Stretching roughly 109 miles north and south, Lake Champlain forms much of the eastern boundary of the six million acre Adirondack Park and, therefore, is of critical concern to the Adirondack Council.

Steeped in a colorful past and the site of numerous historic battles, Lake Champlain is again making history. This past spring, as you have heard, the Lake Champlain basin and Adirondack massif was designated as a biosphere reserve through UNESCO's "Man and the Biosphere" program, and is now the fourth largest biosphere reserve in the world.

One of the principle objectives of the biosphere designation is to enhance cooperation and communication between resource managers at all governmental levels. In that same spirit of cooperation, New York, Vermont, and the Province of Quebec have signed an agreement which establishes a basis for inter-state and international management of Lake Champlain and its watershed.

As stated in that agreement, many important concerns having potential impact on the basin have been identified and need to be addressed. Because Lake Champlain is uniquely situated between two States and Canada, innovative management is necessary to enhance and preserve the character of the lake and its surroundings. True commitment to this ambitious task will require formation of an interstate/interagency body which manages Lake Champlain as a complete ecosystem.

The scale of the problems and management challenges presently facing Lake Champlain necessitates an integrated ecosystem approach. Furthermore, each challenge or problem cannot be addressed in isolation. Many of the problems are interrelated and will require comprehensive management that is consistent throughout the basin.

Examples of problems which must be addressed at this level include overdevelopment of sensitive shoreline areas, rapid expansion of marinas and related facilities, point and nonpoint source pollution of the lake and its tributaries, and basin-wide loading of toxins and acids from airborne emissions.

Resolution of these problems transcends the capabilities of New York and Vermont alone and requires participation at the national level. Such participation should include: reauthorization of a strong Clean Air Act this year—and, as I said last year, we certainly appreciate your help in that; implementation of a comprehensive basin-wide research program; protection of critical habitats and open-space resources through land use planning mechanisms and public acquisition of fee title and conservation easements. Finally, we urge protection for the quality of life of all Adirondack residents, including Federally-endangered species such as the peregrine falcon and the bald eagle, from the awesome insult of low-level FB-111 and B-52 overflights and other inappropriate military actions in the Adirondack Park, one quarter of which, as was mentioned earlier, lies within the Lake Champlain basin.

We believe all of these actions need, wherever possible, allocations of Federal funds and assistance to be successful.

Thank you very much for allowing me an opportunity to take part in this hearing.

Senator MOYNIHAN. Thank you, Mr. Plumley.

And now I call upon our last witness. Mr. McCullough was not able to be here, but we are very happy to have Mr. Wayne Byrne. We welcome you, sir. We have your testimony, which will be placed in the record, and you may proceed as you wish.

STATEMENT OF WAYNE BYRNE, CHAIRPERSON, NEW YORK CITIZENS' ADVISORY COMMITTEE

Mr. BYRNE. Thank you very much, Senator Moynihan and Senator Jeffords. It is a real pleasure to be here and to have the opportunity to speak. With the exception of the last speaker, I wanted to emphasize the role of the independent personhoods involved in environmental issues, etc., etc. I have spent my life doing it, and I try to work for a living at one time and gave it up and retired. So I'm working full-time on this sort of thing.

Our family goes back eight generations right on this side of the lake. It was a family that helped found Plattsburgh. We are concerned about the quality of the lake. We have been every since we started in 1787. We want to emphasize that there is accountability, there is a concern, and there is a will to make things better within the region.

I will address my remarks in a peripheral sense summing up the document you have here.

My own background: I am a professional forester. I was the first professional forester that the St. Regis Paper Company hired to monitor and work with lands in the great State of Vermont. They had some 350,000 acres of woodland. I have carried that through. I am still a member of the Society of American Foresters. I have been a member for 43 years. I attend their meetings and read their documents and papers.

I have been Chairperson of the Adirondack Conservancy for 13 years. We established the first easement program as a viable alternative to fee purchase, and now everybody is getting in the act—not too soon—and the potential is just being scratched.

I am also a member of the Lake Association. I am aware of the impact. I have been a member of that for 25 years. That is a good lesson for this group to learn on not only the ecological relationships, but the economic and others with which this lake is beginning to cope.

Early on in the work of the Lake Champlain Committee we were concerned with water levels, and at that point we found out that we didn't know anything about the lake other than looking at it and agreeing that the view from this side was superlative of Vermont. We hoped that our Vermont neighbors thought the same of our side.

The facts came out that we do not have the data. Doctor Dawson has referred to the urgency for getting the specific data on line today. We have some of it, hit or miss. As a lay person, I am concerned about getting the right groups working together.

We have one lake. We should have one agency dealing with the overview of the lake problems here. There are 72 governmental groups that have some axe to grind in the Lake Champlain basin—72 when I counted them last. Each has its own objectives. In many cases they do overlap. But we have to have some coordination, and

I suggest that we do work with the structure that has been identified here in this document so that we may have one group, one approach, and we can coordinate it.

I'm doing something which everybody says I should not do: I am suggesting that we do have consideration for funding of a cooperative effort between the Federal Government and the States of Vermont and New York for the sixth largest lake in the United States. I am very anxious, as we proceed along that line, we will not draw any more lines among the 72 entities.

We have an international status that has been alluded to by more eloquent people than I. We have 72 entities that are involved with some part of the lake. I submit to you Senators that one of the greatest things we can do is to capitalize on the great spirit of independent people that are available on both sides of the lake that want to come to the party and rally and help and assist in any way to make this a prime example not only for this country but perhaps the world for the quality of its resources and its livability.

I will sign off there.

Senator MOYNIHAN. Very nicely said.

I want to thank all of you for your particular, specific roles. Without you, there wouldn't be a New York State Adirondack Park. We really are grateful to you.

I think Senator Jeffords can speak for himself, but I certainly have heard the case for getting information. We may be wrong here. For all the very meticulous measurements in the Adirondack State Park, we never got the acidic content of the water until very recently. Had we had a series of studies, we would know more on this aspect.

I'd like to make the point that there is a tendency in the vocabulary of the environment to say "I don't want to do anything about it, so I'll study it." There is hardly a more unproductive or counterproductive attitude to have.

That may seem the case when you're dealing with people who don't care to respond very well, but there are problems when dealing with people who are just as smart as you are— maybe smarter—who say "I want to do this." Some studies are necessary, as is appropriate action based on the studies.

I want to thank you all very much.

Senator Jeffords, did you have any questions?

Senator JEFFORDS. First of all, I'd like to mention that it is possible to study something to death, but you are quite accurate that we do need a database.

I am curious, Doctor. Are measurements going on in the lake, or should they be?

Dr. DAWSON. Yes, measurements should be conducted but very few are being done. We should be monitoring it continuously.

Senator JEFFORDS. Some of the stuff stays in, and some goes out. The phosphorus probably stays in pretty much and affects plant life and things, but I guess you don't know that.

Dr. DAWSON. All chemicals in the lake go through cycles, and there is a time period for each cycle. We need to get a handle on which chemicals are coming in and from where and what is happening to each chemical in the lake. We really do not have that

knowledge for any element in the lake except perhaps for the water molecules themselves.

Senator JEFFORDS. Thank you all for very excellent testimony. It has been very exciting meeting all of you and understanding the complexity of the problem. We will take a look at your suggestions and try to set up some special situation within the EPA.

Senator MOYNIHAN. The complexity of the problem is real, and what we are doing today is well within the range of attempting to solve them.

Thank you all for your very excellent testimony and helpful suggestions. Thank you all for coming.

The hearing is adjourned.

[Whereupon, at 3:41 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

[Statements submitted for the record follow:]

PLATTSBURGH, NEW YORK

Plattsburgh, New York

Carlton E. Rennell
Mayor

Office of the Mayor
City Hall
Plattsburgh, New York 12901
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SENATE WATER RESOURCES, TRANSPORTATION, AND INFRASTRUCTURE SUBCOMMITTEE
field hearing on water quality and other issues pertaining to Lake Champlain

June 28, 1989
Clinton Community College

Gentlemen:

Please allow me to share with you a brief background of myself which might help you to understand why I felt it important for me to speak on behalf of Historic Lake Champlain...."My Lake".

Senators, knowing of your deep interest and concern for history, let me talk for a moment of the Gunboat F iladelphia. Lake Champlain has long been a highway of adventure and conquest. First the indians, then Samuel de Champlain, and the French and English.

A most significant battle during the Revolutionary War occurred at Valcour Island. The American fleet, commanded brilliantly by Benedict Arnold, met the British in October, 1776 and successfully thwarted the British plans to join forces to the south of the lake. They lost the battle, but we won the war. Benedict Arnold's fleet, having been built at Whitehall (formerly Skenesborough) with native timbers, served their purpose well.

One of the gunboats, the Philadelphia, was sunk just south of Valcour Island. In 1935, from my boyhood home in Port Kent, looking north from my second story bedroom window, I watched as the Philadelphia was brought to the surface, mast intact and cannonball that sank her still lodged in her hull. That's when my interest in American History began.

But although interesting and deserving of attention, history is not our greatest interest today.

My love for our lake flows through my very veins. As a recreational body of water, I have played in it and on its shores; skated and fished on its surface; and cut blocks of ice to fill the ice house.

Lake Champlain, I believe, is a National Treasure. And as more and more people discover the lake and as more and more pollutants enter these waters, we have all become concerned.

Mayor Carlton E. Rennell
Statement on issues pertaining to Lake Champlain

As the result of our concerns of this heavy usage and deteriorating water quality of Lake Champlain, a historic meeting was held last summer on Lake Champlain. This meeting was attended by concerned environmentalists, State agency representatives, the Governors of New York State and Vermont, and the Premier of Quebec, along with other elected and appointed officials.

The Lake Champlain Memorandum of Understanding on Environmental Cooperation was signed by the Governors and the Premier at that time.

Now we are engaged, as members of the respective Governor's Advisory Committees, to decide a course of action to fulfill the common goals and objectives of the Memorandum of Understanding.

As Mayor of the City of Plattsburgh and as a member of this Advisory Committee, I appeal to you, Senators and the United States Congress, to consider the monumental task before us.

The problems confronting us are complex and serious. Solutions to these problems must be based on the best information possible. There is much we already know about certain causes of lake pollution, but, much more scientific information must be obtained before we can address solutions to the problems of point source pollution and other remedial action which may be necessary to achieve the desirable water quality.

I am appealing for Federal Funds to be made available for the necessary studies that need to be performed. This is, of course, a federal waterway, but it is much more. We have a duty, as a nation, to protect this Lake, our most valuable asset. In my opinion, we must all become good stewards of our environment. The ball is in our court. It is time for government at all levels to act responsibly for our children and our grandchildren.

I have taken the liberty of reproducing some information which was provided by the Lake Champlain Maritime Museum Committee so that you may understand the historical significance of the Gunboat Philadelphia.

Thank you for this opportunity to share my thoughts with you at this hearing.

Carlton Rennell

CARLTON E. RENNELL, Mayor
City of Plattsburgh

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
TESTIMONY
SENATE COMMITTEE ON THE ENVIRONMENT AND PUBLIC WORKS
PLATTSBURGH, NEW YORK
ENTERED ON BEHALF OF COMMISSIONER THOMAS JORLING
BY REGION 5 DIRECTOR THOMAS R. MONROE
June 28, 1989

LAKE CHAMPLAIN HAS PLAYED A CRITICAL ROLE IN THE HISTORY, ECONOMY AND DEVELOPMENT OF THE NORTHEAST AND THE NATION AS A WHOLE SINCE SAMUEL DE CHAMPLAIN FIRST EXPLORED THE LAKE IN 1609.

ON OCTOBER 11, 1776, THE MAJOR REVOLUTIONARY WAR BATTLE OF VALCOUR TOOK PLACE IN LAKE CHAMPLAIN. AS WE ALL KNOW, THIS HARD FOUGHT BATTLE WAS A MAJOR TURNING POINT IN THE REVOLUTIONARY WAR AND WAS SIGNIFICANT IN ULTIMATELY LEADING TO THE VICTORY OF THE COLONIAL FORCES.

DURING THE WAR OF 1812, THE BATTLE OF PLATTSBURGH WAS FOUGHT ON SEPTEMBER 11, 1814 WITH THE AMERICAN FORCES PREVAILING UNDER THE LEADERSHIP OF COMMODORE THOMAS MAC DONOUGH. THIS VICTORY WAS SIGNIFICANT IN LEADING TO THE SIGNING OF THE TREATY IN EUROPE ENDING THE WAR OF 1812. CASUALTIES FROM BOTH SIDES IN THAT BATTLE WERE BURIED ON CRAB ISLAND AND OWNERSHIP OF THE HISTORIC ISLAND HAS NOW RETURNED TO THE PEOPLE OF THE STATE OF NEW YORK THROUGH ACQUISITION BY THE STATE OFFICE OF PARKS, RECREATION AND HISTORIC PRESERVATION.

FOLLOWING THE WAR OF 1812, THE LAKE BECAME A MAIN CORRIDOR FOR TRADE. COMMERCIAL TRAFFIC MOVED FROM NEW YORK CITY THROUGH THE HUDSON RIVER AND THE CHAMPLAIN CANAL AND NORTH TO MARKETS IN MONTREAL. ALTHOUGH NOW UTILIZED MORE FOR RECREATIONAL BOATING, THE CHAMPLAIN CANAL SYSTEM AND THE LAKE STILL PROVIDE AN IMPORTANT TRANSPORTATION ROUTE FOR VESSELS CARRYING FUEL AND HEATING OIL.

AFTER THE FIVE GREAT LAKES, LAKE CHAMPLAIN IS THE LARGEST FRESHWATER LAKE IN THE UNITED STATES. THE TOTAL LAKE WATER SURFACE AREA IS 435 SQUARE MILES OF WHICH 62 PERCENT IS IN VERMONT, 34.5 PERCENT IN NEW YORK, AND 3.5 PERCENT IN QUEBEC. THE FOOTHILLS OF THE ADIRONDACK MOUNTAINS RIM MUCH OF THE WESTERN SIDE OF THE LAKE WHEREAS THE EASTERN HALF OF THE BASIN IS A BROAD PLAIN WITH THE GREEN MOUNTAINS LOCATED 20 MILES TO THE EAST. THE LAKE ITSELF EXTENDS FOR 107 MILES FROM ITS SOUTHERN END NEAR WHITEHALL, NEW YORK TO ITS OUTLET, THE RICHELIEU RIVER, WHICH FLOWS NORTHWARD THROUGH QUEBEC INTO THE ST. LAWRENCE.

YEAR-ROUND AND SEASONAL HOME DEVELOPMENT ALONG THE LAKE SHORE IS CONCENTRATED NEAR COMMUNITIES IN THE VICINITY OF BURLINGTON, CHITTENDEN COUNTY, VERMONT AND PLATTSBURGH, CLINTON COUNTY, NEW YORK. AGRICULTURAL EMPLOYMENT IN THE CHAMPLAIN BASIN, ESPECIALLY DAIRY FARMING, IS COMPARATIVELY HIGHER THAN IN NEW ENGLAND OR NATIONWIDE WITH AN ANNUAL PRODUCT VALUE ESTIMATED AT $60 MILLION IN 1988. EMPLOYMENT IN SERVICES, MANUFACTURING AND TRADE ACCOUNTS FOR NEARLY THREE-QUARTERS OF THOSE EMPLOYED IN THE LAKE CHAMPLAIN BASIN. SEASONAL TOURISM AND RECREATIONAL ACTIVITIES PROVIDE WORK FOR A HIGH PERCENTAGE OF THE WORKERS IN SERVICE AND TRADE.

USES OF WATER

RECREATIONAL USES OF LAKE CHAMPLAIN INCLUDE SWIMMING, FISHING, BOATING, WATER SKIING, WIND SURFING, SKIN DIVING AND WATERFOWL HUNTING. EXCEPT FOR YEAR-ROUND FISHING AND FALL WATERFOWL HUNTING, THESE RECREATIONAL USES OCCUR LARGELY BETWEEN MEMORIAL DAY AND LABOR DAY.

IN 1976, THE NEW ENGLAND RIVER BASINS COMMISSION REPORTED THAT 51 WATER SUPPLY SYSTEMS (WITH 10 OR MORE CONNECTIONS) DERIVE THEIR PRIMARY SOURCE OF WATER FROM LAKE CHAMPLAIN. THIRTEEN OF THESE SYSTEMS SERVE A TOTAL OF 85,000 PEOPLE. PUBLIC WATER SUPPLY INTAKES, INCLUDING BOTH MUNICIPAL AND COMMUNITY TYPE SYSTEMS, ALMOST EXCLUSIVELY USE THE HIGH QUALITY, MAIN LAKE BASIN WATER. LAKE CHAMPLAIN, PARTICULARLY THE MAIN LAKE, SERVES AS A PRIVATE WATER SUPPLY FOR NUMEROUS YEAR-ROUND AND SEASONAL HOMES.

GEORGIA-PACIFIC CORPORATION AT PLATTSBURGH, NEW YORK AND INTERNATIONAL PAPER COMPANY AT TICONDEROGA, NEW YORK DRAW WATER DIRECTLY FROM LAKE CHAMPLAIN FOR PAPER MANUFACTURING PROCESSES REQUIRING LARGE QUANTITIES OF WATER. LESS DEMANDING INDUSTRIAL AND COMMERCIAL REQUIREMENTS ARE SERVED BY MUNICIPAL WATER SUPPLY SYSTEMS. THE PROPOSED VERMONT STATE FISH HATCHERY AT GRAND ISLE WILL UTILIZE BOTH SURFACE AND DEEP WATER FROM LAKE CHAMPLAIN. THE ESSEX COUNTY FISH HATCHERY AT CROWN POINT, NEW YORK USES A MINIMAL QUANTITY OF PUTNAM CREEK WATER FOR FISH PROPAGATION.

ALL BUT ONE MUNICIPALITY WITHIN THE NEW YORK BASIN OF LAKE CHAMPLAIN HAVE COMMUNITY-WIDE SEWAGE COLLECTION SYSTEMS, WITH SECONDARY TREATMENT IN PLACE CONSTRUCTED USING THE EPA/NY CONSTRUCTION GRANTS PROGRAM. THE VILLAGE OF CHAMPLAIN IS UNDER JUDICIAL ORDER TO BRING ITS WASTEWATER TREATMENT FACILITY INTO COMPLIANCE.

A NUMBER OF HAMLET AREAS WHICH DISCHARGE TO SURFACE WATERS FROM INDIVIDUAL OR SMALL COLLECTION SYSTEMS ARE NOW THE SUBJECT OF INITIAL FIELD WORK TO GAIN COMPLIANCE VOLUNTARILY OR THROUGH ENFORCEMENT ACTION.

DEC SUPPORTS LEGISLATION WHICH WILL REQUIRE ALL MARINAS TO INSTALL AND OPERATE BOAT HOLDING TANK PUMPOUT FACILITIES. BOTH VERMONT AND NEW YORK HAVE SIMILAR LAWS REQUIRING BOATS ON LAKE CHAMPLAIN TO HAVE SANITARY WASTE HOLDING TANKS. HOWEVER, THERE IS A REAL SHORTFALL IN THE NUMBER OF MARINAS THAT HAVE OPERABLE PUMPOUT FACILITIES TO SERVICE DEEP DRAFT BOATS.

BIOLOGICAL RESOURCES

THE LAKE CHAMPLAIN WETLANDS ARE ESSENTIALLY A PRODUCT OF THE NATURALLY FLUCTUATING LAKE WATER LEVELS BELOW THE 102 FOOT CONTOUR. A TOTAL OF 32,000 ACRES OF WETLAND HAVE BEEN REPORTED IN THE UNITED STATES PORTION OF LAKE CHAMPLAIN.

THE VEGETATIVE CHARACTERISTICS OF THE LAKE CHAMPLAIN WETLANDS VARY LITTLE THROUGHOUT THE REGION. AT LEAST 81 SPECIES OF FISH HAVE BEEN DOCUMENTED SINCE 1970 EITHER IN LAKE CHAMPLAIN AND/OR IN THE SECTIONS OF 14 U.S. STREAMS.

APPROXIMATELY 20 FISH SPECIES ARE ACTIVELY SOUGHT BY ANGLERS. THE LAKE HAS EXCELLENT COLD WATER AND WARM WATER FISHERIES. A RESTRICTED COMMERCIAL FISHERY FOR LAKE WHITEFISH OPERATES IN THE QUEBEC WATERS OF MISSISQUOI BAY DURING THE FALL. VERMONT ALLOWS A RESTRICTED, COMMERCIAL FISHERY FOR AMERICAN EELS. THESE COMMERCIAL FISHERIES ARE LIMITED IN BOTH THE NUMBER OF PARTICIPANTS AND IN VOLUME OF CATCH. HOWEVER, THERE IS A GROWING WINTER HOOK AND LINE COMMERCIAL ICE FISHERY FOR YELLOW PERCH, SUNFISH AND CRAPPIES WHICH MAY CREATE CONFLICTS WITH SPORT ANGLERS.

OVERVIEW OF MAJOR LAKE PROBLEMS

THE LAKE CHAMPLAIN BASIN HAS RECENTLY BEEN RECOGNIZED AS AN AREA OF UNIQUE ECOLOGICAL SIGNIFICANCE WARRANTING MANAGEMENT PROGRAMS DEDICATED TO HELPING DISCOVER THE SOLUTIONS TO MITIGATING MAN'S ALTERATION OF THE ENVIRONMENT. THE OFFICIAL RECOGNITION OCCURRED THIS YEAR THROUGH THE UNITED NATIONS INTERNATIONAL BIOSPHERE PROGRAM. YET LAKE CHAMPLAIN, IN ALL ITS MAGNIFICENCE AS AN OUTSTANDING NATURAL RESOURCE, IS SENSITIVE TO IMPACTS FROM HUMAN ACTIVITIES WHICH DO NOT RESPECT STATE OR INTERNATIONAL BOUNDARIES. THE RANGE OF PROBLEMS CONFRONTING LAKE CHAMPLAIN IS VAST AND WELL KNOWN TO THE NUMEROUS PARTIES AND AGENCIES CONCERNED WITH AND INVOLVED WITH PRESERVING LAKE CHAMPLAIN. THE PREDOMINANT WATER QUALITY PROBLEMS AFFECTING LAKE CHAMPLAIN INCLUDE POLLUTION, EUTROPHICATION, NUISANCE AQUATIC PLANTS, LAKE LEVELS AND PROBLEMS ASSOCIATED WITH AQUATIC ALGAE GROWTH AND THE ASSOCIATED EFFECTS (TASTES, ODORS, GREEN COLOR, PARTICLES IN THE WATER, REDUCED TRANSPARENCY, OXYGEN DEPLETION).

LIKE MANY OTHER PARTS OF THIS COUNTRY, THE LAKE CHAMPIAIN AREA ALSO FACES ENVIRONMENTAL PROBLEMS AS A RESULT OF AIR POLLUTION. OF PRIMARY CONCERN, OF COURSE, IN THIS REGION ARE THE IMPACTS OF ACIDIC DEPOSITION ON OUR LAKES AND FORESTS. WE ALSO CONTINUE TO FACE A GROWING CONCERN WITH THE PROBLEMS ASSOCIATED WITH TRANSPORTED OZONE AND AIR TOXICS.

MR. CHAIRMAN, THE DEPARTMENT WOULD LIKE TO THANK BOTH YOU AND SENATOR JEFFORDS FOR YOUR PAST SUPPORT IN AN ATTEMPT BY BOTH NEW YORK AND VERMONT TO ADDRESS THESE SERIOUS PROBLEMS THROUGH AMENDMENTS TO THE CLEAN AIR ACT. NOW THAT THE ADMINISTRATION HAS PROPOSED AN OUTLINE FOR LEGISLATION, I HOPE WE CAN WORK TOGETHER TO ENSURE THAT A COMPREHENSIVE CLEAN AIR ACT REAUTHORIZATION INCLUDES PROVISIONS STRINGENT ENOUGH TO HELP US DEAL WITH THE AIR POLLUTION PROBLEMS AFFECTING OUR MAJOR NATURAL RESOURCES.

CERTAINLY THE CASE FOR AMENDMENTS TO THE ACT TO ADDRESS ACID RAIN HAS BEEN ESTABLISHED FOR SOME TIME. HOWEVER, IT IS BECOMING CLEAR TO US THAT ACTIVITIES IN OTHER STATES AND OTHER REGIONS OF THIS COUNTRY ARE NOW CAUSING US CONCERNS WITH BOTH OZONE AND AIR TOXICS. LAST SUMMER THE STATE'S ATMOSPHERIC SCIENCE AND RESEARCH CENTER'S OZONE MONITORS ON TOP OF WHITEFACE MOUNTAIN, WHICH HAS AN ALTITUDE OF 5,200 FEET, DETECTED VIOLATIONS OF OZONE STANDARDS ON SUFFICIENT DAYS TO TRIGGER A NONATTAINMENT DESIGNATION FOR THAT POLLUTANT.

WE SHARE SIMILAR CONCERNS REGARDING THE IMPACT OF TOXICS TRANSPORT.

NEW YORK AND VERMONT ARE, HOWEVER, LOOKING TO UNDERSTAND AND ADDRESS THIS PROBLEM THROUGH ADDITIONAL MONITORING AND RESEARCH EFFORTS. THIS SUMMER WE HAVE PLANS TO ESTABLISH A NEW MONITORING SITE IN THE TOWN OF WILLSBORO THAT WILL DOCUMENT LEVELS OF OZONE, SULFUR DIOXIDE, AND VARIOUS TOXICS. WITH THIS INFORMATION, WE WILL ANALYZE THE RELATIONSHIPS FROM DATA GATHERED AT OTHER MONITORS IN THE AREA, SUCH AS WHITEFACE MOUNTAIN, TO BETTER UNDERSTAND AIR POLLUTION TRANSPORT PROBLEMS IMPACTING THE LAKE CHAMPLAIN BASIN.

CRITICAL NATURAL RESOURCE PROBLEMS AFFECTING LAKE CHAMPLAIN RESULT FROM THE RECENT RAPID GROWTH AND DEVELOPMENT IN AREAS BORDERING THE LAKE IN BOTH VERMONT AND NEW YORK. A RECENT SURVEY BY THE ADIRONDACK PARK AGENCY REPORTS A 36% INCREASE IN THE NUMBER OF SINGLE FAMILY STRUCTURES CONSTRUCTED BETWEEN 1967 AND 1987 IN CLINTON COUNTY AND A 45% INCREASE IN ESSEX COUNTY. DURING THE SAME PERIOD BOTH COUNTIES EXPERIENCED A 34% DECLINE IN

PRIVATELY OWNED FOREST LAND PARCELS. COMPETING RECREATIONAL DEMANDS HAVE SIGNIFICANTLY INCREASED IN INTENSITY OVER THE PAST FEW YEARS AS MORE AND MORE PEOPLE "DISCOVER" LAKE CHAMPLAIN. EXISTING MARINAS HAVE LONG WAITING LISTS OF PEOPLE LOOKING FOR DOCKAGE OR MOORING SPACE AND HAVE, IN SOME CASES, RESPONDED WITH EXTENSIVE EXPANSION PLANS. CONCERNS FOR MARINA WATER QUALITY IMPACTS ARE OFTEN RAISED DURING STATE PERMIT REVIEW PROCESSES. THESE CONCERNS HAVE INCLUDED SEWAGE AND GRAY WATER DISCHARGES, GASOLINE AND OIL SPILLS FROM FUELING BOATS AND LEAKING UNDERGROUND STORAGE TANKS, PETROLEUM DISCHARGES FROM MOTORS, TURBIDITY CAUSED BY PROPELLER ACTION NEAR THE BOTTOM, FRAGMENTATION AND TRANSPORT OF NUISANCE AQUATIC PLANTS, LEACHING OF TOXIC MATERIALS FROM PRESSURE-TREATED LUMBER USED IN DOCKS, AND SHORELINE EROSION CAUSED BY BOAT WAKES.

PRESERVING SIGNIFICANT ECOLOGICAL AREAS, WETLANDS AND CRITICAL WILDLIFE HABITATS WILL BECOME INCREASINGLY MORE DIFFICULT AND COMPLEX ALONG LAKE CHAMPLAIN AS THE SCRAMBLE FOR LIVING SPACE AND RECREATIONAL OPPORTUNITIES ESCALATES. ADDITIONALLY, INAPPROPRIATE DEVELOPMENT ON AND NEAR THE LAKE SHORE THREATENS VISUAL QUALITY OF THE LAKE BASIN. PROPER MANAGEMENT OF THE TREMENDOUS FISHERIES RESOURCE OF LAKE CHAMPLAIN -- AS WELL AS THE PROPOSED SEA LAMPREY CONTROL PROGRAM -- IS A MATTER OF ONGOING CONCERN FOR BOTH STATES. AQUATIC PLANT INFESTATIONS ARE A SERIOUS PROBLEM IN CERTAIN NEAR SHORE REGIONS IN LAKE CHAMPLAIN; HOWEVER, THE EXTENT AND MAGNITUDE OF THIS PROBLEM IS NOT ADEQUATELY UNDERSTOOD.

SOLID WASTE DISPOSAL PROBLEMS ARE ANOTHER ENVIRONMENTAL PROBLEM FACED BY COMMUNITIES WITHIN THE LAKE CHAMPLAIN BASIN. NEW YORK STATE IS IN THE MIDST OF A SOLID WASTE DISPOSAL CAPACITY CRISIS. IN FACT, ALL OF THE STATES IN THE NORTHEAST ARE CONFRONTED WITH THAT SAME DISPOSAL CAPACITY CRISIS. IN NEW YORK STATE, WE PRODUCE ABOUT 20.1 MILLION TONS OF MUNICIPAL SOLID WASTE EACH YEAR, APPROXIMATELY 82% OF WHICH IS LANDFILLED. THERE HAS BEEN A DRAMATIC DECREASE IN THE PAST 25 YEARS IN THE NUMBER OF LANDFILLS WHERE OUR SOLID WASTE IS DISPOSED. IN 1964, THERE WERE AS MANY AS 1,600 LANDFILLS/DUMPSITES OPERATING IN NEW YORK STATE; AS OF DECEMBER 31, 1988 THERE WERE 263 ACTIVE LANDFILLS IN THE STATE. SOME OF THE PROBLEMS ASSOCIATED WITH THE LANDFILLS THAT ARE VIOLATING ENVIRONMENTAL STANDARDS ARE CONTAMINATION OF WATER SUPPLIES, MIGRATION OF EXPLOSIVE/TOXIC GASES AND LANDFILL FIRES. SUCH POTENTIAL DEGRADATION OF THE ENVIRONMENT COULD ALSO HAVE AN IMPACT ON LAKE CHAMPLAIN. THE DEPARTMENT IS PURSUING

CLOSURE OF INADEQUATELY DESIGNED AND OPERATED LANDFILLS. THOSE WHICH CAUSE OR CONTRIBUTE TO THE DEGRADATION OF NEW YORK STATE SURFACE WATERS RECEIVE THE HIGHEST PRIORITY FOR PROPER CLOSURE. MANY LANDFILLS HAVE CLOSED AND ARE EXPECTED TO CLOSE BECAUSE THEY ARE EITHER REACHING CAPACITY OR ARE VIOLATING ENVIRONMENTAL STANDARDS. LOCAL GOVERNMENTS NEED TO LOOK FOR ALTERNATIVE METHODS FOR SOLID WASTE MANAGEMENT AND TO CARRY OUT SOLID WASTE MANAGEMENT PLANNING.

IN THE AREAS OF NEW YORK STATE SURROUNDING LAKE CHAMPLAIN (SPECIFICALLY IN THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION'S REGION 5), THERE ARE 84 ACTIVE LANDFILLS; 51 OF WHICH ARE CURRENTLY UNDER CONSENT ORDER TO CLOSE WITH ANOTHER 23 LIKELY TO COME UNDER CONSENT ORDER SOON. THE ESTIMATED COST OF PROPERLY CLOSING A LANDFILL IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT FACILITY REGULATIONS (PART 360 OF TITLE 6 OF THE RULES AND REGULATIONS OF THE STATE OF NEW YORK) IS $100,000 PER ACRE. SMALL MUNICIPALITIES (SUCH AS THOSE IN THE LAKE CHAMPLAIN DRAINAGE BASIN) MAY HAVE DIFFICULTY MEETING LANDFILL CLOSURE COSTS AND MAY REQUIRE OUTSIDE ASSISTANCE TO MEET THOSE COSTS.

IN 1988, THE STATE OF NEW YORK PROMULGATED A COMPREHENSIVE REGULATORY REGIME FOR ALL ASPECTS OF THE SOLID WASTE MANAGEMENT PROCESS. OUR REGULATORY PROGRAM, EMBODIED IN PART 360, ESTABLISHES MINIMUM REQUIREMENTS FOR ALL SOLID WASTE MANAGEMENT FACILITIES. THE STATE REGULATIONS INCORPORATE RECENT SOLID WASTE MANAGEMENT TECHNICAL, STATUTORY AND POLICY DEVELOPMENTS INTO A SINGLE DOCUMENT AND REFLECT THE TREND TOWARD INCREASINGLY STRICT CONTROLS ON SOLID WASTE MANAGEMENT FACILITIES. THESE REGULATIONS IN COMBINATION WITH THE NEW YORK STATE SOLID WASTE MANAGEMENT ACT OF 1988 (CHAPTER 70 OF THE LAWS OF 1988) ENCOURAGE LOCAL GOVERNMENTS TO ENGAGE IN LONG-TERM PLANNING FOR MANAGEMENT OF SOLID WASTES.

NEW YORK STATE HAS ESTABLISHED A SOLID WASTE MANAGEMENT POLICY ENCOURAGING WASTE REDUCTION AND REUSE/RECYCLING AS PRIORITY MANAGEMENT METHODS FOR DEVELOPMENT OF INTEGRATED SOLID WASTE MANAGEMENT SYSTEMS.

SOUND LOCAL SOLID WASTE MANAGEMENT PLANNING IS ESSENTIAL TO ADDRESSING THE DISPOSAL CAPACITY CRISIS AND BRINGING ABOUT INTEGRATED WASTE MANAGEMENT. IN 1987, OUR NEW YORK STATE SOLID WASTE MANAGEMENT PLAN, WHICH IS UPDATED ANNUALLY, ESTABLISHED A 1997 GOAL OF EIGHT TO TEN PERCENT WASTE REDUCTION AND 40 TO 42 PERCENT REUSE/RECYCLING. THE NEW YORK STATE SOLID WASTE MANAGEMENT PROGRAM INCLUDES GRANTS TO ASSIST LOCAL GOVERNMENTS WITH THE COST OF DEVELOPING LOCAL SOLID WASTE MANAGEMENT PLANS EMPHASIZING WASTE REDUCTION AND RECYCLING. THE DEPARTMENT HAS RECEIVED AND TENTATIVELY APPROVED AN APPLICATION FOR A GRANT

FROM CLINTON COUNTY TO DEVELOP A PLAN FOR MANAGING ITS SOLID WASTE. THIS PLANNING EFFORT WILL HELP TO ENSURE THAT CLINTON COUNTY'S SOLID WASTE WILL BE MANAGED IN A WAY THAT WILL PROTECT LAKE CHAMPLAIN FROM DEGRADATION DUE TO IMPROPER MANAGEMENT OF SOLID WASTES AND SOLID WASTE MANAGEMENT FACILITIES. ENVIRONMENTALLY SOUND SOLID WASTE MANAGEMENT FACILITIES ARE BEING DEVELOPED IN THE LAKE CHAMPLAIN DRAINAGE BASIN AREA OF NEW YORK STATE WHICH SHOULD HELP TO ALLEVIATE THE DISPOSAL CAPACITY CRISIS IN THAT AREA. FOR EXAMPLE, A DOUBLE LINED SANITARY LANDFILL IS SLATED TO OPEN IN THE FALL OF 1989 IN ESSEX COUNTY AND A PERMIT TO CONSTRUCT HAS BEEN ISSUED FOR THE ADIRONDACK RESOURCE RECOVERY FACILITY TO SERVE WASHINGTON AND WARREN COUNTIES.

SOUND SOLID WASTE MANAGEMENT PLANNING COUPLED WITH STATE-OF-THE ART REGULATIONS PROVIDE A FRAMEWORK IN WHICH LOCAL GOVERNMENTS CAN MEET THEIR SOLID WASTE MANAGEMENT NEEDS WHILE ENSURING PROTECTION OF PUBLIC HEALTH AND THE ENVIRONMENT. A COMPREHENSIVE EVALUATION OF IMPACTS OF NON-POINT SOURCE POLLUTION MUST ADDRESS THE NEED TO PROPERLY CLOSE OR UPGRADE EXISTING DUMP SITES, AND CONSTRUCT NEW SOLID WASTE MANAGEMENT FACILITIES WITHIN THE LAKE CHAMPLAIN BASIN.

COMPREHENSIVE OIL SPILL PREVENTION AND CLEAN-UP PROGRAMS TO ENSURE THAT THE LAKE IS ADEQUATELY PROTECTED FROM TRANSPORTATION SPILLS AND LEAKS OCCURRING AT FACILITIES HANDLING THESE MATERIALS ARE NEEDED WITHIN THE BASIN. THERE IS A SIGNIFICANT POTENTIAL FOR SPILLS OF OIL AND HAZARDOUS MATERIALS TO LAKE CHAMPLAIN AND ITS WATERSHED FROM ON-LAKE TRANSPORTATION SYSTEMS, RAILROADS BORDERING THE LAKE, INDUSTRIAL COMPLEXES ON THE LAKE SHORE AND HIGHWAY SYSTEMS CLOSE TO THE LAKE.

A SPILL WOULD POSE A SERIOUS RISK TO HIGH PRIORITY RESOURCE AREAS INCLUDING WATER SUPPLIES, WILDLIFE MANAGEMENT AREAS, RECREATIONAL FACILITIES AND THE LAKE'S FISHERIES.

BOTH STATES HAVE ISSUED HEALTH ADVISORIES AS A RESULT OF LOCALIZED PCB CONTAMINATION OF THE FLESH OF CERTAIN SPECIES OF FISH TAKEN FROM LAKE CHAMPLAIN. LITTLE IS KNOWN ABOUT THE MAGNITUDE OF THE LOADINGS OF THESE MATERIALS OR THEIR IMPACT ON THE LAKE.

IN ORDER TO BEGIN TO ADDRESS THESE PROBLEMS IN A COMPREHENSIVE WAY THROUGH INTER-GOVERNMENTAL COOPERATION AND JOINT ENVIRONMENTAL MANAGEMENT WITHIN THE LAKE CHAMPLAIN BASIN, THE STATES OF NEW YORK AND VERMONT AND THE PROVINCE OF QUEBEC HAVE ENTERED INTO A JOINT MANAGEMENT AND PLANNING EFFORT.

ON AUGUST 23, 1988, GOVERNOR CUOMO, GOVERNOR KUNIN OF VERMONT AND PREMIER BOURASSA OF QUEBEC MET IN THE MIDDLE OF THE LAKE AND SIGNED A MEMORANDUM OF UNDERSTANDING ON JOINT ENVIRONMENTAL MANAGEMENT PROGRAMS FOR THE LAKE CHAMPLAIN BASIN. THE AGREEMENT PUT INTO EFFECT A FOUR YEAR PLANNING EFFORT TO DEVELOP JOINT INTER-GOVERNMENTAL PROGRAMS TO PRESERVE AND ENHANCE THE LAKE CHAMPLAIN ECOSYSTEM THROUGH THE EXCHANGE OF INFORMATION, PRIOR NOTIFICATION AND CONSULTATION, COOPERATIVE SCIENTIFIC RESEARCH AND JOINT MANAGEMENT EFFORTS. THE AGREEMENT ALSO ESTABLISHES A JOINT STEERING COMMITTEE FOR MANAGEMENT PROGRAMS, CO-CHAIRED BY THE COMMISSIONER OF DEC AND VERMONT SECRETARY OF NATURAL RESOURCES.

UNDER THE AGREEMENT, NEW YORK, VERMONT AND QUEBEC WILL:

1. ESTABLISH A FORUM FOR COOPERATIVE MANAGEMENT OF LAKE CHAMPLAIN AND ITS WATERSHED;

2. BUILD UPON EXISTING COOPERATIVE RELATIONSHIPS AND PROGRAM COMPACTS;

3. ESTABLISH A PROCESS FOR THE REGULAR EXCHANGE OF INFORMATION AND SYSTEMATIC COOPERATION IN RESEARCH AND DATA GATHERING.

4. PROVIDE A MECHANISM FOR PARTICIPATION OF EACH STATE IN REGULATORY PROCEEDINGS ADDRESSING SIGNIFICANT ACTIONS AFFECTING THE LAKE.

5. JOINTLY PUBLISH AN ANNUAL REPORT ON COOPERATIVE PROGRAMS.

THE FULL TEXT OF THE AGREEMENT HAS BEEN PROVIDED TO YOUR OFFICE AND IS BEING SUBMITTED FOR THE HEARING RECORD.

DRAFT TECHNICAL WORK PLAN

THROUGH THE WORK OF NUMEROUS STAFF FROM NEW YORK AND VERMONT AGENCIES, A DRAFT FRAMEWORK FOR JOINT WORK PLANS UNDER THE LAKE CHAMPLAIN AGREEMENT HAS BEEN DEVELOPED AS A BASIS FOR COOPERATIVE MANAGEMENT PROGRAMS BETWEEN NEW YORK, VERMONT AND QUEBEC. THE WORK PLAN IS STILL IN DRAFT FORM AND WILL REMAIN A DRAFT DOCUMENT UNTIL ADDITIONAL COMPONENTS OF THE PROGRAM ARE DEVELOPED, APPROPRIATE CITIZEN PARTICIPATION EFFORTS HAVE BEEN INITIATED AND POTENTIAL FUNDING SOURCES FOR LONG-TERM OBJECTIVES HAVE BEEN IDENTIFIED. THE LAKE CHAMPLAIN COOPERATIVE AGREEMENT WILL HELP TO ADDRESS QUESTIONS REGARDING THE POTENTIAL IMPACTS OF GROWTH AND DEVELOPMENT ON LAKE CHAMPLAIN. THE FULL TEXT OF THE DRAFT FRAMEWORK HAS BEEN PROVIDED TO YOUR OFFICE AND IS BEING SUBMITTED TODAY FOR THE HEARING RECORD.

GROWTH AND DEVELOPMENT

BOTH VERMONT AND NEW YORK HAVE SEEN RAPID GROWTH IN RECENT YEARS IN THE LAKE CHAMPLAIN BASIN. THE SETTING OF THE LAKE, HOWEVER, IS STILL PREDOMINANTLY RURAL. THE IMPORTANCE OF MAINTAINING THE ATTRACTIVENESS OF THE RESOURCE DEMANDS THAT WE MAKE PRUDENT, WELL INFORMED CHOICES ON WHERE AND HOW GROWTH AND DEVELOPMENT WILL TAKE PLACE. PROTECTION OF THE ASSET MUST BE BALANCED WITH THE GROWTH IT ATTRACTS. THE FUNDAMENTAL NEED IS TO ESTABLISH BASELINE PLANNING INFORMATION TO PROVIDE FOR MORE INFORMED, COORDINATED LAND USE PLANNING AND DECISION-MAKING BY MUNICIPALITIES, REGIONAL PLANNING COMMISSIONS, AND STATE AGENCIES. PUTTING TOGETHER THAT BASELINE PLANNING INFORMATION IS ONE OF THE OBJECTIVES OF THE LAKE CHAMPLAIN COOPERATIVE AGREEMENT. THAT INFORMATION WILL ASSIST IDENTIFICATION OF AREAS WHICH SHOULD BE PROTECTED THROUGH LAND USE CONTROLS AND/OR ACQUIRED FOR FUTURE PUBLIC USE AND ENJOYMENT OR PROTECTION OF CRITICAL HABITATS.

THE VERMONT AND NEW YORK NATURAL HERITAGE PROGRAMS BEGAN SEPARATELY SEVERAL YEARS AGO AND HAVE ESTABLISHED INVENTORIES ON THE LOCATION AND STATUS OF THE REGION'S RAREST ANIMAL AND PLANT SPECIES. WE FEEL THAT THROUGH THE LAKE CHAMPLAIN COOPERATIVE AGREEMENT THESE PROGRAMS CAN MORE EFFECTIVELY BE INTEGRATED AND INVENTORY DATA KEPT UP-TO-DATE, ENSURING THOROUGH ANALYSIS OF ANY ACTIVITY WHICH POTENTIALLY AFFECTS THESE VALUABLE RESOURCES.

IT IS CLEAR THAT ONE ELEMENT OF ANY PROGRAM TO PROVIDE LONG-TERM PROTECTION TO CRITICAL RESOURCES MUST INCLUDE PUBLIC PURCHASE OF LANDS. HOWEVER, THE ABILITY OF THE STATES ALONE TO PURCHASE LANDS ESSENTIAL TO THE PUBLIC DOMAIN IS SEVERELY HANDICAPPED. THE $250 MILLION IN LAND ACQUISITION FUNDS FROM NEW YORK STATE'S 1986 ENVIRONMENTAL QUALITY BOND ACT HAVE ALREADY LARGELY BEEN COMMITTED TO PROJECTS AROUND THE STATE AND WILL BE EXHAUSTED BY 1990. FUNDS ARE NEEDED TO CONTINUE THE PURCHASE OF ENVIRONMENTALLY SENSITIVE LANDS, PARTICULARLY CRITICAL HABITATS FOR RARE AND ENDANGERED SPECIES OF PLANTS AND ANIMALS. THE LAKE CHAMPLAIN NARROWS ARE ESPECIALLY IN NEED OF PROTECTION. THE FEDERAL GOVERNMENT MUST PLAY AN INCREASING ROLE IN HABITAT PROTECTION PROGRAMS THROUGH MATCHING AID TO EXISTING STATE PROGRAMS.

RECREATIONAL CARRYING CAPACITY

WE CAN ONLY ESTIMATE THE EXTENT TO WHICH LAKE CHAMPLAIN IS USED FOR RECREATIONAL ACTIVITIES.

ONE OF THE MAIN OBJECTIVES OF THE LAKE CHAMPLAIN COOPERATIVE AGREEMENT WORK PLAN IS TO IDENTIFY COMMON CRITERIA TO BE USED IN DETERMINING THE IMPACT OF INCREASING RECREATIONAL DEMAND ON LAKE CHAMPLAIN. IN ADDITION TO THE CONCERN OF PROTECTING ENVIRONMENTAL QUALITY, THOSE CRITERIA SHOULD ADDRESS ISSUES RELATING TO USE CONFLICTS, NAVIGATIONAL PROBLEMS, SAFETY ISSUES, AND LEGAL QUESTIONS.

THE EVENTUAL GOAL IS TO ESTABLISH A RECREATIONAL USE CARRYING CAPACITY FOR LAKE CHAMPLAIN.

REGULATORY INTERACTION

CERTAIN TYPES OF DEVELOPMENT ALONG THE SHORELINE OF LAKE CHAMPLAIN HAVE THE POTENTIAL TO IMPACT THE CARRYING CAPACITY OR QUALITY OF THE LAKE AS A WHOLE. PRESENTLY NO MECHANISM IS IN PLACE TO NOTIFY AGENCIES IN THE OTHER STATE OF THIS TYPE OR CLASS OF PROJECT. A NEED EXISTS TO DEVELOP A MECHANISM WHEREBY ALL INVOLVED REGULATORY AGENCIES IN NEW YORK, VERMONT AND QUEBEC WILL BE ROUTINELY NOTIFIED OF PROJECTS THAT MAY IMPACT THE ADJOINING STATE. THUS THE OBJECTIVE WILL BE TO DEFINE AND DEVELOP A LIST OF PROJECT TYPES AND SIZE THRESHOLDS THAT WOULD INITIATE THE NOTIFICATION PROCESS AND DEVELOP A PROCEDURE THAT WILL ENSURE THAT COMMENTS FROM ALL INVOLVED AGENCIES IN THE THREE JURISDICTIONS RECEIVE ADEQUATE CONSIDERATION IN THE DECISION-MAKING PROCESS.

FOREST MANAGEMENT

FOREST INDUSTRIES AND FARMS LOCATED IN THE CHAMPLAIN BASIN COMPRISE A LARGE PERCENTAGE OF THE LAND AND AFFECT ADJACENT SOIL AND WATER RESOURCES. WATER QUALITY ISSUES RELATING TO FORESTRY AND AGRICULTURE ARE ADDRESSED IN THE NATURAL RESOURCE MANAGEMENT SECTION OF THE DRAFT FRAMEWORK FOR JOINT MANAGEMENT PROGRAMS.

BOTH NEW YORK AND VERMONT HAVE DEVELOPED LAND MANAGEMENT GUIDELINES WHICH RECOMMEND ACCEPTABLE FORESTRY AND AGRICULTURAL PRACTICES DESIGNED TO REDUCE EROSION AND NON-POINT SOURCE POLLUTION.

THE FEDERAL NORTHERN FOREST LAND STUDY IS A $250,000 PROGRAM FUNDED BY THE U.S. FOREST SERVICE TO DEVELOP STRATEGIES TO ENCOURAGE THE FOREST INDUSTRY TO RETAIN OWNERSHIP OF LAND FOR BOTH OPEN SPACE AND THEIR ECONOMIC VIABILITY. THE PURCHASE OF DEVELOPMENT RIGHTS UNDER NEW YORK STATE'S ENVIRONMENTAL QUALITY BOND ACT PROGRAM ALSO ENCOURAGES THE FOREST INDUSTRY TO CONTINUE TO MANAGE THEIR FOREST LANDS WHILE ALLOWING THE STATE TO ACQUIRE DEVELOPMENT AND PUBLIC RECREATION RIGHTS THROUGH CONSERVATION EASEMENTS. MORE FUNDING FOR ECONOMIC DEVELOPMENT WITHIN THE FOREST INDUSTRY IS NEEDED, HOWEVER, TO ENSURE A HEALTHY, VIABLE FOREST INDUSTRY IN NORTHERN NEW YORK AND NEW ENGLAND. EMPHASIS SHOULD BE PLACED ON THE DEVELOPMENT OF SECONDARY WOOD PRODUCTS INDUSTRIES SO THAT THE RAW WOOD MATERIALS GROWN IN NEW YORK ARE NOT SHIPPED ABROAD, CREATING JOBS IN OTHER LOCALITIES INSTEAD OF OUR OWN AREA. THE NATIONAL ASSOCIATION OF STATE FORESTERS HAS PROPOSED THAT THE FEDERAL GOVERNMENT PROVIDE THE STATES WITH $25 MILLION FOR FOREST LAND STEWARDSHIP, OPEN SPACE PROTECTION AND PROJECTS THAT WOULD IMPROVE NATURAL HABITATS AND RECREATIONAL RESOURCES OF OUR FOREST LANDS.

HOWEVER, THERE IS A CONTINUAL NEED TO INFORM PRIVATE LANDOWNERS OF THE VALUE OF PROFESSIONALLY GUIDED FOREST MANAGEMENT PLANS. INCREASED MONITORING EFFORTS AND SPECIFIC GOVERNMENT INCENTIVES TO ENCOURAGE COMPATIBLE AGRICULTURAL PRACTICES ARE NEEDED.

SOME OF OUR OBJECTIVES OF THE LAKE CHAMPLAIN COOPERATIVE AGREEMENT WHICH DEAL WITH THIS ISSUE ARE TO:

- IDENTIFY FEDERAL AND STATE FORESTRY AND AGRICULTURAL LAND MANAGEMENT PROGRAMS WHICH PROVIDE ECONOMIC INCENTIVES TO PROMOTE SOUND MANAGEMENT PRACTICES ON INDIVIDUAL PARCELS.

- IDENTIFY GOVERNMENT ECONOMIC INCENTIVES WHICH MAY DIRECTLY AID AND ENCOURAGE FOREST INDUSTRIES AND AGRIBUSINESS IN THE CHAMPLAIN BASIN.

- IDENTIFY AND CONSOLIDATE ALL EXISTING INTERSTATE FORESTRY AND AGRICULTURE-RELATED COOPERATIVES.

LAKE CHAMPLAIN SEA LAMPREY CONTROL

THE STATES OF VERMONT AND NEW YORK HAVE LONG RECOGNIZED THE ECOLOGICAL UNIQUENESS OF LAKE CHAMPLAIN AND THE DESIRABILITY OF COORDINATED MANAGEMENT OF FISH AND WILDLIFE RESOURCES. TOWARD THIS END THE TWO STATES AND THE U.S. FISH AND WILDLIFE SERVICE ESTABLISHED A FORMAL WORKING RELATIONSHIP IN 1973 WHEN

REPRESENTATIVES OF THE THREE JURISDICTIONS' FISH AND WILDLIFE AGENCIES SIGNED THE LAKE CHAMPLAIN FISH AND WILDLIFE MANAGEMENT COOPERATIVE. THE TRIPARTITE MEMORANDUM OF UNDERSTANDING EXECUTED ON AUGUST 23, 1988 REPRESENTS A REAFFIRMATION OF THE DESIRABILITY OF COORDINATED MANAGEMENT OF THIS JOINTLY OWNED RESOURCE AND A PLEDGE TO NOT ONLY CONTINUE BUT TO BROADEN THE HORIZONS OF OUR EFFORTS.

TROUT AND SALMON HARVESTS HAVE NOT REACHED CATCH AND ANGLER USE OBJECTIVES OUTLINED IN MANAGEMENT PLANS FOR THE SALMONID FISHERIES IN LAKE CHAMPLAIN. ESTIMATED HARVEST RATES ARE BASED ON THE QUANTITY OF TROUT AND SALMON HABITAT, THE LAKE'S PRODUCTIVITY AND HARVEST RATES OBSERVED IN OTHER LAKES. IT IS ESTIMATED THAT ONLY 45 PERCENT OF THE NUMERICAL TARGETS HAVE BEEN ACHIEVED. TOTAL WEIGHT OF THE CATCH IN 1985 WAS 61,650 POUNDS, OR ONLY 38 PERCENT OF TOTAL WEIGHT PROJECTIONS. THIS SHORTFALL IN SALMONID HARVESTS CAN BE DIRECTLY ATTRIBUTED TO THE PROBLEM OF SEA LAMPREY PREDATION ON LAKE CHAMPLAIN SALMON AND LAKE TROUT. AN EXPERIMENTAL LAMPREY CONTROL PROGRAM, BASED ON THE HIGHLY SUCCESSFUL LAMPRICIDE TREATMENT PROGRAM IN THE GREAT LAKES AND ELSEWHERE, HAS THEREFORE BEEN PROPOSED BY NEW YORK AND VERMONT, IN CONJUNCTION WITH THE U.S. FISH AND WILDLIFE SERVICE.

THE PUBLIC REVIEW AND HEARINGS PROCESS ON THE DRAFT EIS AND NECESSARY PERMITS IS NOW BEING CONDUCTED. FOLLOWING THIS PROCESS, A DECISION WILL BE MADE BY THE THREE INVOLVED AGENCIES: THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, THE VERMONT AGENCY OF NATURAL RESOURCES, AND THE U.S. FISH AND WILDLIFE SERVICE, ON WHETHER OR NOT TO PROCEED WITH THE SEA LAMPREY CONTROL PROGRAM. ACTUAL LAMPRICIDE TREATMENT APPLICATION WOULD BE CONTRACTED OUT TO THE U.S. FISH AND WILDLIFE SERVICE SEA LAMPREY CONTROL UNIT BASED IN MICHIGAN, WITH STATE PERSONNEL PERFORMING SUPPORT ACTIVITIES.

OTHER FISHERIES MANAGEMENT CONCERNS

1. WALLEYE

LAKE-WIDE ANGLER COMPLAINTS REGARDING THE STATUS OF THE WALLEYE FISHERY IN LAKE CHAMPLAIN RESULTED IN THE DEPARTMENT, VERMONT FISH AND WILDLIFE DEPARTMENT, AND THE UNIVERSITY OF VERMONT CONDUCTING A VARIETY OF WALLEYE ASSESSMENT ACTIVITIES ON THE LAKE. THE DEPARTMENT RECENTLY CONCLUDED A FIVE-YEAR STUDY OF THE SOUTH BAY AND GREAT CHAZY RIVER WALLEYE SPAWNING POPULATIONS. STUDY FINDINGS ARE CURRENTLY BEING ANALYZED AND MANAGEMENT RECOMMENDATIONS WILL BE MADE.

2. FISHING DERBIES

THE DEC HAS MAINTAINED A NEUTRAL POSITION REGARDING FISHING DERBIES AND TOURNAMENTS ON LAKE CHAMPLAIN PROVIDING THEY DO NOT NEGATIVELY IMPACT EXISTING FISHERY RESOURCES OR OTHER RECREATIONAL USES ON THE LAKE.

PUBLIC CONCERN ABOUT POSSIBLE NEGATIVE IMPACTS OF COMPETITIVE FISHING EVENTS HAS INCREASED RECENTLY. CONCERNS RANGE FROM SOCIAL (BOATING PRESSURE) TO BIOLOGICAL (OVERHARVEST).

3. TOXICS AND HEALTH ADVISORIES

TO MINIMIZE POTENTIAL HEALTH IMPACTS FROM CONTAMINANTS IN FISH, THE DEPARTMENT OF HEALTH ISSUES RECOMMENDATIONS THAT APPEAR IN THE NYS FISHING, SMALL GAME HUNTING AND TRAPPING REGULATIONS GUIDE. ALL PERSONS WHO CONSUME FISH FROM LAKE CHAMPLAIN ARE ADVISED TO FAMILIARIZE THEMSELVES WITH THESE RECOMMENDATIONS. IT IS NOW RECOMMENDED THAT AMERICAN EELS AND BROWN BULLHEADS TAKEN FROM WATERS IN THE VICINITY OF PLATTSBURGH, AND LAKE TROUT (GREATER THAN 25 INCHES) TAKEN FROM THE ENTIRE LAKE, NOT BE EATEN MORE THAN ONCE MONTHLY.

THE LAKE TROUT ADVISORY IS BASED ON THE ANALYSIS OF SAMPLES COLLECTED IN 1984. ELEVATED LEVELS OF PCB'S AND CHLORDANE WERE DETECTED. ADDITIONAL SAMPLES WERE COLLECTED IN 1987 AND MONITORING WILL CONTINUE AS NEEDED AND THE PUBLIC WILL BE INFORMED OF RESULTS VIA THE HEALTH ADVISORY IN THE REGULATIONS GUIDE.

IT SHOULD BE RECOGNIZED THAT THE MODERATE CONTAMINANT LEVELS FOUND IN LAKE CHAMPLAIN DO NOT JEOPARDIZE THE RECREATIONAL AND ECONOMIC BENEFITS FROM SEA LAMPREY CONTROL AND THAT ALL WATERS IN NEW YORK STATE CARRY A HEALTH ADVISORY OF AT LEAST RESTRICTING CONSUMPTION TO ONE MEAL PER WEEK.

FISH TISSUE MONITORING PROGRAMS APE CURRENTLY UNDERWAY IN BOTH NEW YORK AND VERMONT. IN ADDITION, THE USE OF LEAD SHOT FOR WATERFOWL HUNTING WILL BE ELIMINATED FROM NOT ONLY LAKE CHAMPLAIN BUT ALL ACROSS THE NATION BY 1991.

THERE ARE ALSO GENERAL STATE-WIDE HEALTH ADVISORIES ON THE CONSUMPTION OF FISH AND WATERFOWL WHICH SERVE TO MINIMIZE POTENTIAL ADVERSE HEALTH EFFECTS, PARTICULARLY FOR WOMEN OF CHILDBEARING AGE, INFANTS, AND CHILDREN UNDER 15.

IT HAS BEEN PROPOSED THAT THE TOXIC SUBSTANCE MONITORING PROGRAMS AND THE ISSUANCE OF HEALTH ADVISORIES BE COORDINATED BETWEEN NEW YORK AND VERMONT.

NYSDEC EMPLOYS A NUMBER OF STRATEGIES TO DISCOVER AND CONTROL POLLUTANTS IN THE ENVIRONMENT AND THOSE BEING DISCHARGED TO THE ENVIRONMENT.

HISTORICALLY, THE DEPARTMENT HAS MAINTAINED A NETWORK OF SAMPLING STATIONS ON THE MAJOR DRAINAGE BASINS IN NEW YORK STATE. THIS PROGRAM WAS DESIGNED TO ESTABLISH BASELINE WATER QUALITY INFORMATION AND CHART TRENDS IN WATER QUALITY IMPROVEMENT OR DEGRADATION.

RECENTLY, THE DEPARTMENT HAS ENHANCED THIS PROGRAM BY INITIATING INTENSIVE BASIN SURVEYS. THE LAKE CHAMPLAIN BASIN WAS ONE OF THE FIRST SUCH SURVEYS UNDERTAKEN. ANOTHER PROGRAM USED TO DETECT TOXICS IN THE ENVIRONMENT UTILIZES FISH COLLECTED FROM VARIOUS LOCATIONS IN THE LAKE. THESE ARE ROUTINELY ANALYZED FOR THE PRESENCE OF PERSISTENT POLLUTANTS SUCH AS HEAVY METALS AND CHLORINATED HYDROCARBONS. THE RESULTS OF THIS PROGRAM ARE USED TO LOCATE AREAS OF POTENTIAL POLLUTION EITHER IN THE WATER COLUMN OR SEDIMENTS.

ALSO, PERMITTED POINT SOURCES WITHIN THE BASIN ARE ROUTINELY SAMPLED FOR PRIORITY POLLUTANTS. WHEN PRIORITY POLLUTANTS ARE FOUND, PERMITS ARE MODIFIED TO CONTROL THE DISCHARGE OR IF PERMITTED AND FOUND OUTSIDE OF THE PERMIT LIMITS, APPROPRIATE ACTION IS TAKEN TO BRING THE SOURCE INTO COMPLIANCE.

4. JOINT FISHING LICENSES

ANGLERS FROM BOTH NEW YORK AND VERMONT HAVE PERIODICALLY EXPRESSED A DESIRE TO HAVE SOME TYPE OF RECIPROCAL FISHING LICENSE THAT WOULD ALLOW THEM TO FISH EITHER SIDE OF LAKE CHAMPLAIN WITH A SINGLE LICENSE. THE LAKE CHAMPLAIN TECHNICAL COMMITTEE'S SUBCOMMITTEE ON REGULATIONS HAS REVIEWED THIS ISSUE OF RECIPROCAL LICENSES. FAVORABLE ASPECTS OF THIS CONCEPT INCLUDE (1) THE UNIDENTIFIABLE MID-LAKE BOUNDARY BETWEEN THE TWO STATES, AND (2) A PROBABLE SOLUTION TO THE EXISTING DOUBLE DAILY BAG LIMITS POSSIBLE WITH TWO LICENSES. AN UNFAVORABLE ASPECT IS ANTICIPATED REVENUE LOSS IN LICENSE FEES FOR BOTH STATES.

ANOTHER EXAMPLE OF LAKE CHAMPLAIN AS A JOINTLY MANAGED RESOURCE IS THE FACT THAT WATERFOWL SEASONS IN NEW YORK'S PORTION OF LAKE CHAMPLAIN MUST BE IDENTICAL TO THE SEASONS ESTABLISHED BY THE VERMONT FISH AND WILDLIFE DEPARTMENT.

IN THE EARLY 1980'S, AS A RESULT OF SOME MAJOR CHANGES IN WATERFOWL SEASONS INITIATED BY VERMONT TO BETTER PROTECT THE WATERFOWL RESOURCE, NEW YORK SPORTSMEN FELT THEY HAD LITTLE INPUT AND WERE BEING LEFT OUT OF THE SEASON SETTING PROCESS. IN 1984, A LAKE CHAMPLAIN WILDLIFE TECHNICAL COMMITTEE WAS ESTABLISHED TO JOINTLY MANAGE THE WATERFOWL RESOURCE IN THE LAKE CHAMPLAIN VALLEY. CONSISTING OF REPRESENTATIVES FROM THE U.S. FISH AND WILDLIFE SERVICE, VERMONT, AND NEW YORK, THE COMMITTEE HOLDS PUBLIC INFORMATIONAL MEETINGS, CONDUCTS WATERFOWL HUNTER OPINION SURVEYS, AND IN 1985 RECOMMENDED THE ESTABLISHMENT OF A THREE-YEAR EXPERIMENTAL WATERFOWL ZONE THAT SEPARATES THE INTERIOR OF VERMONT FROM LAKE CHAMPLAIN THEREBY INCREASING THE FLEXIBILITY OF BOTH STATES IN ESTABLISHING WATERFOWL SEASONS. THE ATLANTIC WATERFOWL COUNCIL HAS RECOMMENDED TO THE U.S. FISH AND WILDLIFE SERVICE THAT THIS ZONE BE CONTINUED AS A PERMANENT WATERFOWL ZONE.

FEDERAL CLEAN LAKES PROGRAM, PHASE I DIAGNOSTIC/FEASIBILITY STUDY FOR LAKE CHAMPLAIN

MUCH INFORMATION EXISTS ON THE CONDITION OF LAKE CHAMPLAIN, BUT ADDITIONAL RESEARCH INFORMATION IS STILL NEEDED. ONE AREA THAT NEEDS FURTHER WORK IS IN THE REFINEMENT OF THE PHOSPHORUS BUDGET FOR THE LAKE. PHOSPHORUS HAS BEEN CITED AS THE LIMITING NUTRIENT FOR ALGAE GROWTH IN THE PRODUCTIVE BAYS OF LAKE CHAMPLAIN.

A KEY OBJECTIVE OF THE VERMONT-NEW YORK WORK PLAN ON LAKE CHAMPLAIN IS THE COMPLETION OF A PHOSPHORUS STUDY LEADING TO THE DEVELOPMENT OF A COMPREHENSIVE PHOSPHORUS MANAGEMENT STRATEGY FOR LAKE CHAMPLAIN. ACCORDINGLY, VERMONT AND NEW YORK HAVE PREPARED A JOINT PROPOSAL FOR A U.S. ENVIRONMENTAL PROTECTION AGENCY CLEAN LAKES PROGRAM DIAGNOSTIC/FEASIBILITY GRANT TO CONDUCT THIS STUDY. THE TOTAL PROJECT COST IS $903,105. ALTHOUGH THE FOCUS OF THE STUDY IS DETERMINING THE SOURCES OF PHOSPHORUS AND THE INFLUENCE OF THESE SOURCES ON LAKE TRANSPARENCY, ALGAE AND DISSOLVED OXYGEN LEVELS, THE COLLECTION OF SAMPLES FROM THE LAKE AND ALL THE MAJOR TRIBUTARIES WILL PROVIDE INSIGHT ON THE LOADING OF OTHER CONSTITUENTS, SUCH AS NITROGEN, SUSPENDED SEDIMENT AND TOXIC MATERIALS. ALTERNATE FUNDING IS BEING SOUGHT TO STRENGTHEN THE TOXIC MATERIALS COMPONENT. MORE FUNDING FOR STUDIES OF THE LAKE'S BOTTOM SEDIMENTS AND MIXING PATTERNS IS ALSO NEEDED.

THE NEW YORK PORTION OF THE DIAGNOSTIC-FEASIBILITY PROJECT IS $357,507. THE NYSDEC HAS RECENTLY RECEIVED A $100,000 GRANT AWARD FROM EPA, TO BE MATCHED ON A 70/30 BASIS, FOR CONDUCT OF THIS STUDY. THIS IS THE MAXIMUM AMOUNT TO BE OBTAINED THROUGH THE CLEAN LAKES PROGRAM, BECAUSE THERE IS A REGULATORY LIMIT OF

$100,000 ON CLEAN LAKES PHASE I DIAGNOSTIC/FEASIBILITY STUDY AWARDS. SECTION 205(J) FUNDS AMOUNTING TO $80,000 HAVE BEEN APPROPRIATED FOR USE IN THIS STUDY FROM THE NYSDEC-DIVISION OF WATER FISCAL YEAR 1989 ALLOCATION. IN ADDITION, A COOPERATIVE AGREEMENT BETWEEN THE NYSDEC AND THE U.S. GEOLOGICAL SURVEY IS BEING SOUGHT TO CONDUCT THE HYDROLOGIC WORK FOR THE STUDY AT A COST OF $214,650, WITH THE USGS PROVIDING 50% ($107,325) OF THIS COST. ASSUMING THE USGS IS ABLE TO PROVIDE THEIR SHARE OF THE MATCH, WHICH IS UNCLEAR AT THE PRESENT TIME, THE NEW YORK PORTION OF THE DIAGNOSIS WORK STILL HAS A $27,325 DEFICIT. THEREFORE, FOR THIS PROJECT TO SUCCEED, IT IS IMPERATIVE THAT IT RECEIVE HIGH FUNDING PRIORITY BY THE USGS ON A NATIONAL LEVEL, AND THAT FUNDS AMOUNTING TO $27,325 BE IDENTIFIED TO ALLEVIATE THE CURRENT NEW YORK SHORTFALL. VERMONT DEC STAFF WILL PROVIDE A SIMILAR ASSESSMENT OF THEIR BUDGET NEEDS FOR THIS PROJECT.

THE $903,105 FIGURE FOR THE TWO STATES, REPRESENTS ONLY THE INITIAL PORTION OF THE DIAGNOSTIC-FEASIBILITY STUDY FOR THE LAKE. APPROXIMATELY ANOTHER $700,000 IS NEEDED TO CONDUCT STUDIES ON FEASIBILITY ISSUES. FOR EXAMPLE, THE PROPOSED WORK WILL DETERMINE THE LOADING OF VARIOUS POLLUTANTS AT THE MOUTHS OF ALL OF THE MAJOR TRIBUTARIES TO THE LAKE AND HOW THESE LOADINGS INFLUENCE THE WATER QUALITY OF EMBAYMENTS AND THE LAKE PROPER. MORE WORK WILL BE NEEDED IN ORDER TO DETERMINE THE SOURCES OF EACH POLLUTANT WITHIN EACH TRIBUTARY'S WATERSHED. THIS PROCESS WILL INVOLVE ADDITIONAL SAMPLING AND SIMULATION MODELING. THE MODELING WILL BE USED TO PREDICT THE IMPACT OF VARIOUS LAND MANAGEMNET SCENARIOS ON LAKE WATER QUALITY.

THIS OVERVIEW OF LAKE CHAMPLAIN MANAGEMENT ISSUES ILLUSTRATES THE NEED FOR CONTINUED FEDERAL INVOLVEMENT. WE URGE THE SENATORS TO CONTINUE EFFORTS TO STRENGTHEN THE FEDERAL CLEAN LAKES PROGRAMS, REVOLVING LOAN FUND FOR FEDERAL FUNDING OF SEWAGE TREATMENT PLANT CONSTRUCTION AND U.S. FISH AND WILDLIFE SERVICE SUPPORT FOR LAMPREY CONTROL PROGRAMS IN THE GREAT LAKES AS WELL AS LAKE CHAMPLAIN.

IN CLOSING I WOULD LIKE TO QUOTE FROM GOVERNOR CUOMO'S REMARKS ON THE OCCASION OF SIGNING THE TRIPARTITE AGREEMENT IN THE CENTER OF LAKE CHAMPLAIN LAST AUGUST.

"THE ONE MOST IMPORTANT POLITICAL, GOVERNMENTAL IDEAL THAT WE LIVE WITH TODAY IS THAT WE ALL NEED EACH OTHER. UNTIL YOU UNDERSTAND THAT IT IS ONE WORLD, ONE PLACE, ONE INTEREST, WE MAKE NO PROGRESS.

"YOU SHOULD HAVE GOVERNMENT WHERE YOU NEED GOVERNMENT, AND THIS IS A PLACE WHERE YOU NEED GOVERNMENT. YOU CAN'T LEAVE IT TO THE PRIVATE SECTOR, YOU CANNOT LEAVE IT TO THE BUSINESS PEOPLE, YOU CANNOT LEAVE IT TO THE RESIDENTS AND THE OWNERS TO DO THE RIGHT THING BY THE LAKE, OR THE RIGHT THING BY THE TIMBER, OR THE RIGHT THING BY THE AIR, OR THE RIGHT THING BY THE RIVERS. THERE

ARE TOO MANY INDIVIDUALS WHO WILL MAKE MISTAKES, TOO MANY INDIVIDUALS WILL SEE ONLY THEIR OWN BENEFITS. YOU MUST REGULATE WHETHER YOU LIKE IT OR NOT. THIS IS AN IDEAL ILLUSTRATION OF THE GOOD USES OF GOVERNMENT. GOOD GOVERNMENT, WHERE NOTHING ELSE WILL WORK AND SO THE GOVERNMENT OF QUEBEC, AND THE GOVERNMENT OF VERMONT AND THE GOVERNMENT OF THE STATE OF NEW YORK JOIN TOGETHER AND SAY YES, HERE IS A GOOD PLACE TO USE THE AUTHORITY GIVEN US BY THE PEOPLE FOR A GOOD PURPOSE FOR ALL PEOPLE."

Testimony of Robert C. Glennon
on behalf of the
New York State Adirondack Park Agency
before the
Senate Subcommittee on Water Resources,
Transportation, and Infrastructure

Senator Moynihan, Senator Jeffords, good afternoon and thank you very much for holding this field hearing on Lake Champlain water quality. I am Bob Glennon, Executive Director of the Adirondack Park Agency. The Agency is an independent body in the New York State Executive Department charged by statute with master planning for the 2.5 million acres of Forever Wild Adirondack Forest Preserve in the Park, with administering a land use planning and environmental impact assessment statute for the 60% of the 6 million acre Park that is private land, and with serving as the forum for the development of State policy for the Park. It is that last duty I would like to emphasize today.

Senator Moynihan, when your staff kindly called recently to invite the Agency to testify, my first response was, I can't talk about Lake Champlain water quality, especially non-point source issues, as those matters are primarily and directly entrusted to the New York State Department of Environmental Conservation, from whom you will hear today. I told your staff that if I had a chance to speak for 5 minutes, I would rather speak of the issues facing the Adirondacks as it nears its Centennial in 1992. I was told that was O.K. If it isn't O.K., please don't ask me who called me.

On reflection, nothing, obviously, could be more connected to the Adirondacks than Lake Champlain. We all know the story of Samuel DeChamplain using his arquebus in 1609, killing the Iroquois who confronted him and, it is said, changing the course of history by causing the Indians to side with the English. Students of Adirondack history are familiar with the marking of the straightest and tallest trees along Lake Champlain with the King's mark, for use as masts for His Majesty's Navy, something

that galled the colonists. Blithely putting over two centuries of bloody French, English and American military history involving Lake Champlain from 1609 aside, marking those trees could be seen as the beginning of the lumberman chopping his inexorable way to the center of the Adirondacks by 1850, a year New York led the Nation in timber production, seven years before Samuel Hammond, in Wild Northern Scenes, said if he had his way he would draw a circle of a hundred miles and throw around it the protecting aegis of the Constitution, make it a forest forever, where it would be a misdemeanor to cut a tree and a felony to clear an acre, where the old woods could stand always, as God made them, growing until the earthworm ate away their roots, and the strong winds hurled them to the ground, and new woods permitted to supply the place of the old so long as the earth remained.

Twenty-eight years later, in 1885, after a Commission chaired by Charles Sprague Sargent reported that the area was being reduced by the lumberman to an unproductive and dangerous desert, New York put "Forever Wild" on the statute books. In 1892 it

created the Adirondack Park within which to concentrate Forest Preserve acquisitions, and in 1894, in Constitutional Convention assembled, the People of the State served notice a statute, entrusted in administration to bureaucrats, and subject to the will of elected officials, was not enough. Forever Wild became part of the covenant between the governed and their government, where it has remained, not one word changed.

If you read the 1894 Debates, you will come away convinced that they meant to buy it all. About that same time, Governor Roswell P. Flower, 1893, told the Legislature that efforts to establish an Adirondack Park had been disappointing.

The efforts to establish an Adirondack Park, even now, after nearly a century, are still disappointing. That is not in any way to belittle the work of the Temporary Study Commission on the Future of the Adirondacks, which told Governor Nelson Rockefeller in 1970, that if the Adirondacks are to be saved, time is of the essence; that if at least 600,000 acres are not acquired or otherwise protected from development, the Adirondack Park as we

know it today will vanish within a generation; and whose work gave rise to the Park Agency, the State Land Master Plan and the Private Land Plan. And, jumping ahead to just two months ago, that is not to belittle the work of dedicated officials in both Vermont and New York whose efforts led to international recognition of the Adirondacks and the Lake Champlain drainage in Vermont as an International Biosphere Reserve.

Many of our beloved Adirondack lakes are dead, but I don't think I need to argue the case for acid deposition legislation to you. Respected scientists say parts of our forests are dying for the same reason. Vermont has done magnificent work before EPA proving that even the visibility in the Green Mountains and Adirondacks has suffered as a result.

Similarly, I don't believe I need to argue the merits of the Chafee-Udall American Heritage Trust bill with you. I'm sure New York State would love to see that pass. (And while I'm on the subject, New York State is most grateful for the revolving loan

bill for sewage treatment plants and, I'm told, will [or perhaps has by now] passed the complimentary State legislation.)

Whether we need leveraged buyout legislation or just restoration of capital gains treatment to prevent another timber company from going the way of Diamond International is not something on which the Adirondack Park Agency, frankly, can comment intelligently. I do want to pay tribute to Steve Harper of the Forest Service in Rutland, to the Governors' Task Forces from the involved states, and to the many people who have assisted in other ways, for the Federal Northern Forest Lands Study, due to report to Congress in September. All we can say at this point is that yeoman work is being done to assist Congress and State policymakers in assuring that the Great North Woods, and a healthy timber industry, remain. I commend the report to you, sight unseen.

Senator Moynihan, some years ago the Park Agency called upon you for help in a typical New York vs the Feds issue, and you gave it, for which we thank you. Congress had created the North

Country National Scenic Trail across the Park's midsection, and we feared Federal management contrary to, or in conflict with, Forever Wild and the State Land Master Plan. You clarified the legislative history in the Congressional Record, thus assuring that wouldn't happen, and we appreciated it. Would we be wearing out our welcome if we now turned to you again?

Let me mention two things which suggest an appropriate Federal gift to the Adirondack Park at its Centennial. Twelve years ago, in connection with site preparation for what its detractors called the Olympic Prison in Ray Brook, over 70 acres were cleared and grubbed. Not a tree, not a stump, not a blade of grass remained. Then it rained, and there are even those who think the bulldozers got down to the water table, removing 90 foot topographic variations. Ray Brook, once a lovely clear stream, ran brown for days and days, carrying probably hundreds of tons of silt to Oseetah Lake, three miles away, and into Oseetah Lake marsh, almost 500 acres of exquisite wetland and one of the few

ring-necked duck nesting habitats in the Adirondack Park. By the way, these waters drain to the Saranac, and the Saranac to Lake Champlain.

New York searched for ways to prevent such a thing from ever happening again. Now yours truly had recommended the Feds condemn the State lands which became the Olympic Prison site, because to do otherwise risked a lawsuit contending New York State was conveying away State Forest Preserve in violation of its Constitution.

The Plenary Powers Clause, Supremacy Clause, and Needful Buildings Clause all prevent the exercise of State jurisdiction in such instances absent a Federal retrocession of sovereignty. As a result, this almost wistful invitation was added to the Adirondack Park Agency Act in 1981:

> It is hereby declared to be the policy of this state that new land use or development or acquisition of land by the United States within the Adirondack park shall conform to the land use and development plan and the

master plan for the management of state lands so far as practicable, and to any further extent as the Congress of the United States may by law provide.

That's example 1. Here is example 2. As you know (and thank you for your letter), the Strategic Air Command will shortly begin low-level B-52 and FB-111 training flights over the Adirondacks, in places at 500 feet altitude. Marine helicopters want to touch down on our mountain peaks. F-15 "Strike Eagles" have completed one month of experimental low-level runs in the south central Adirondacks. Were the Adirondacks treated the same as a National Park, were our Wilderness Areas treated the same as Federal Wilderness, those aircraft would have to fly at 2,000 feet, and that federal policy is currently under review with an eye to tightening it.

What more appropriate gift to the Adirondacks at its Centennial, a gift to New York State, which I heard described to a dozen foreign visitors yesterday as the crucible of conservation, because of its creation of the Forest Preserve and the Adirondack

Park, than a federal consistency bill for the Adirondacks? As yet another Adirondack Commission struggles, this time perhaps with the Nation watching, to make the Adirondack Park the bright and vibrant park New York State citizens want and deserve, the Park our ancestors began to envision almost one hundred thirty-three years ago, perhaps Congress might consider this small repayment.

Thank you again for inviting me to testify.

TESTIMONY OF

GEORGE D. DAVIS, EXECUTIVE DIRECTOR
OF
GOVERNOR CUOMO'S
COMMISSION ON THE ADIRONDACKS IN THE TWENTY-FIRST CENTURY

BEFORE THE

UNITED STATES SENATE
SUBCOMMITTEE ON WATER RESOURCES, TRANSPORTATION, AND
INFRASTRUCTURE
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

SENATOR DANIEL PATRICK MOYNIHAN
AND
SENATOR JAMES JEFFORDS
PRESIDING

PLATTSBURGH, NY
JUNE 28, 1989

TESTIMONY OF GEORGE D. DAVIS, EXECUTIVE DIRECTOR OF GOVERNOR CUOMO'S COMMISSION ON THE ADIRONDACK'S IN THE TWENTY-FIRST CENTURY

I appreciate the opportunity to appear before you once again, Senator Moynihan. Your leadership, particularly in the decade-long struggle against acid rain, is becoming legendary and is especially appreciated by those of us who care dearly for the Adirondack Park. I am confident that Senator Jeffords will be right there beside you, as his predecessor Senator Stafford would have been, as the Clean Air Act is finally amended this year to deal with acid deposition.

But today the subject is not acid rain. It is water quality, Lake Champlain, and the Lake Champlain basin. I find this hearing both unusual and encouraging. Unusual because we don't have an apparent environmental crisis yet in the Lake Champlain basin; and, unfortunately, our society and government seldom take notice until we have a full-blown crisis. Encouraging because it offers us a chance to examine impending threats and explore opportunities; opportunities that might best be seized through a local, state, national -- and in the case of Lake Champlain, international -- partnership. Governor Cuomo's Commission on the Adirondacks in the Twenty-First Century is convinced that we have the opportunity here in the Lake Champlain basin, and throughout the Adirondack Park, to live both in

harmony with our natural environment and in economic dignity.

But I'm getting a bit ahead of myself. Perhaps I should first explain why the Governor's Commission on the Adirondacks is interested in Lake Champlain and Lake Champlain's water quality. To begin with, approximately 25 percent of the six million acre Adirondack Park is within the Lake Champlain basin; the use of these lands will be a major determinant of the eventual water quality of Lake Champlain. And secondly, New York's common border with the State of Vermont in the middle of the lake forms the eastern boundary of the Adirondack Park for over eighty miles.

In establishing the Commission, Governor Cuomo recognized that we "may be entering a new period in the history of the Adirondacks, an era of unbridled land speculation and unwarranted development that may threaten the unique open space and wilderness character of the region." I would suggest that these same trends threaten both the character and the water quality of Lake Champlain as well.

The Governor asked us to define the Park we would like for our children in the twenty-first century; to evaluate existing state programs and policies to see if they are adequate to achieve the type of Park we envision; to consider what new programs and modifications in existing programs might be necessary to achieve the type of Park we envision (including, I might add, whether there should be

any federal presence in the Park); and, to explore how a strong economic base, compatible with the Park we envision, might be achieved. A big challenge, indeed; but the kind of challenge we should all be undertaking: defining the kind of environment in which we want our children to raise their children.

The Commission has no answers yet. It has not yet developed a single recommendation. But this much is clear: we must be bolder and more imaginative than we have been in the past. We must look at water quality, air quality, land use, economic development, wilderness, biological diversity, recreation, and scores of other topics not as independent issues for which we can identify a goal and make a recommendation or two. We must look at all of these elements and realize that they are interconnected pieces of our biosphere, our home.

I ask that you and your sub-committee take a similar approach as you study the issues concerning Lake Champlain water quality. Consider shoreline development; consider sewage disposal methods; consider changing land use in the uplands; consider recreational, domestic and industrial uses of the Lake. Consider the findings of the Forest Service's Northern Forest Lands Study to be released this fall. Consider the findings of the Adirondack Commission to be released in October. And consider the recommendations of the Adirondack Commission to be released next spring.

Although the Commission has made no specific recommendations yet, it is already evident that New York State cannot protect the Adirondack Park alone. For instance, the Park's open space ambiance and its economy are both dependent to a great degree on large industrial forest holdings. The break-up of these holdings would threaten the very heart and soul of the Park and yet the sale of these holdings will be the result if leveraged buyouts continue in the timber industry. The state can regulate changing land uses and it can purchase more lands, but if corporate raiders continue to run free, we stand to lose well over a million acres of commercial forest land in the Park. We don't pretend to be experts on securities law, but we have seen the results of take-overs and greenmail when applied to commercial forest lands, whether Pacific Lumber's California redwoods or Diamond International's northern hardwood forests right here in the Adirondacks. And the results are not what we want for our Adirondack Park. We will continue to fight for the protection of the Adirondack Park from this end, but we ask your assistance in Washington to put some brakes on corporate raiding where the effect is to convert the environment and natural resources on which our society's future depends into short term gains for greedy individuals.

It is also evident that preserving our rural environment and economy will require continued purchase of land and less than fee title interests in land such as

conservation easements. To enable us to do so, we ask for your enthusiastic support of S. 370, The American Heritage Trust Act. This legislation will assist states in protecting critical landscapes, such as the Adirondack Park, in the way we feel will best accommodate all state interests. In the Adirondacks, it will allow us to retain forestry and farming as a way of life as well as preserve delicate natural resources and recreational areas.

Two months ago this week, the entire United States' portion of the Lake Champlain basin and the entire Adirondack Park were designated as an International Biosphere Reserve by the United Nations Educational, Scientific, and Cultural Organization. As a result, the eyes of the world will be on us as we attempt to achieve human dignity, sustainable development, and harmony with our natural environment. With your advice, assistance, and leadership, we believe we can succeed.

Thank you.

TESTIMONY PRESENTED TO

THE UNITED STATES SENATE

WATER RESOURCES, TRANSPORTATION AND

INFRASTRUCTURE SUBCOMMITTEE

OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

FIELD HEARING ON WATER QUALITY AND OTHER ISSUES

PERTAINING TO LAKE CHAMPLAIN

At: Clinton County Community College

Plattsburgh, New York

2:00 p.m., Wednesday, June 28, 1989

By: James C. Dawson, Ph.D.

Professor

Center For Earth and Environmental Science

State University of New York

Plattsburgh, New York

Good Afternoon, Senator Moynihan, Senator Jefferts, fellow panelists and guests. It is a pleasure for me to be able to have a few minutes to present members of the Senate Subcommittee with my thoughts, as a scientist, on Lake Champlain water quality issues. Thank you very much for taking the time to conduct field hearings on Lake Champlain and for giving me the privilege of testifying.

BACKGROUND

By any standards, Lake Champlain is a very large, and limnologically complex lake. The lake is 170 km (109 mi) long, up to 20.2 km (11 mi) wide, and up to 122m (400 feet) deep, with an average depth of 22.8 m (75 feet). Its surface is divided into the Main Lake and four sublakes that include Missisquoi Bay, Northeast Arm, Malletts Bay and South Lake (Myer and Gruendling, 1979). These four sublakes each have their own water chemistry and circulation characteristics, and the volume of water transport between the sublakes, and with the Main Lake, is very restricted. In addition, the shores of the Main Lake and the sublakes are deeply indented with bays, including Kings, Cumberland, Willsboro, Northwest and Bulwagga in New York and more in Vermont, so that Lake Champlain's 1130 km^2

(436 mi^2) of surface area creates about 940 km (587 mi) of shoreline in New York, Vermont and Quebec. The lake has a fairly high 17:1 drainage basin area to lake surface area (Lerman 1978), and the 21,326 km^2 (8,234 mi^2) drainage basin has some 34 identifiable tributaries (Vermont and New York, 1989, page 20) flowing into Lake Champlain.

Lake Champlain had a rich pre-Colonial and early military history that was followed by a period of timbering, agricultural and commercial development in the 19th and early 20th centuries. During this period, lower lying areas were deforested and planted, the rivers were dammed and polluted by commercial enterprises, and the surface became a busy commercial waterway.

From the late 1920's almost to the present, the drainage basin has seen a transition in which the commercial and industrial use of the tributaries and the lake has declined.

The major use of Lake Champlain today is for recreation, including lakeshore living, boating, fishing and swimming (for about eight weeks of the year). The complex geography of the lake has produced a myriad of islands and headlands that are

set in a pastoral valley surrounded by the beauty of the Green Mountains and the Adirondacks (NERBC, 1978 and 1979). This pastoral setting is ungoing change as more people become aware of ~~the~~ Lake Champlain resources.

Over the last decade, a broad concensus of support has emerged for the concept has emerged that Lake Champlain is a resource that needs protection. In the late 1970's, the New England River Basin Commission conducted a massive Level B Lake Champlain Basin Study (NERBC 1978 and 1979) that produced over thirty technical reports and papers. Most recently, the States of Vermont and New York and the Province of Quebec signed a Memorandum of Agreement on Environmental Cooperation on the Management of Lake Champlain and ~~the Province of Quebec~~ have individually been involved in a number of water quality and land use initiatives to assist in protecting Lake Champlain water quality (Vermont and New York 1988b).

The United Nations Educational Scientific and Cultural Organization recently designated a Champlain-Adirondack Biosphere Reserve. This designation recognizes the region as a representative area in the large Lake-Forest

Biogeographical Province that stretches along most of the eastern border of the United States and Canada. (Dawson, 1989).

These activities and many others demonstrate a high level of interest and concern for Lake Champlain and its drainage basin among residents, elected officials, visitors and increasingly among the scientific community.

CONVENTIONAL WATER QUALITY PARAMETERS

The Level B Study (NERBC, 1979) brought together most of what was then known about the limnology of Lake Champlain in a comprehensive technical report by Myer and Gruendling (1979), and additional discoveries over the last decade have been modest. Much of what we know about the conventional chemistry of Lake Champlain is derived from work conducted in the 1970's by Ben Henson and Milt Potash at the University of Vermont and by Gerry Gruendling and John Malanchuck at SUNY-Plattsburgh. The Level B Study (NERBC, 1979) concluded that Lake Champlain is receiving excess nutrients. The near-shore zone shows symptoms of phosphorus enrichment. Measurements of water clarity, phosphorus, and chlorophyll show high

trophic index levels (TSIc) in St. Albans Bay, Burlington Bay, Shelburne Bay, Cumberland Bay, Kings Bay and Bulwagga Bay (VanBenschoten, 1978). The total loading of phosphorus to Lake Champlain ranged from 536,000 to 804,000 kilograms (Bogdan, 1978) per year. Of this, about 48% was attributed to municipal and industrial point sources, and about 52% was attributable to non-point sources. These percentages vary for each of the tributaries to Lake Champlain.

Since the Level B Study, the State of New York has sampled three conventional parameter stations, at Champlain, NY on the Great Chazy River, in the Main Lake and at Putnam Creek in South Lake until 1986 (NYSDEC 1988b). The State of Vermont has conducted a lay monitoring program that began in 1979 and which currently looks seasonally at 28 stations on Lake Champlain (Hentcy, 1989). Most recently, New York included Lake Champlain in its statewide rotating intensive basin survey program (NYSDEC, 1989) and a report on the data collected in 1987 and 1988 is expected later this year. Later this year, or next year, the Bureau of Monitoring and Assessment, Division of Water, NYS Department of Environmental Conservation, will conduct a conventional parameter study of

Cumberland Bay and will likely include conventional parameters in a toxic study to be conducted on the Little Chazy River. Earlier this year, the USDA Soil Conservation Service in Clinton County, NY conducted a mail questionnaire survey of key informants in the county to locate non-point source pollution problems. A list of impacted sites will be developed from this survey for field review next year.

The Level B Study also examined the potential for non-point source from the forested lands of the basin (USDA Forest Service, 1978) and reviewed two representative agricultural watersheds, including the Corbeau Creek-Great Chazy-Little Chazy watershed (USFA SCS Syracuse, 1978) and the LaPlatte River watershed (USDA - SCS Burlington, 1978). Subsequently, monitoring of the LaPlatte River watershed has continued (VWRRC, 1988). Recently, the National Park Service (NPS, 1984) conducted a management survey that reviewed institutional arrangements and resources in the Boquet River watershed, but did not do chemical analyses.

In sum, the studies that have been conducted ~~have been~~ since the conventional parameter studies

of the 1970's have been limited in scope. More recent studies have been limited as part of statewide surveys or limited by the availability of volunteers or of funding. There exists a need for a comprehensive study to accurately determine the extent and cause of known eutrophication in the near shore and embayed portions of the Lake Champlain. This includes the severe need to improve our understanding of the phosphorus cycle in the lake, since this is likely the limiting factor for algae growth in near shore areas. We know that no single phosphorus source is dominant, so that research and monitoring needs to be focused on the variety of point and nonpoint sources defined in standard limnology texts (Drever, 1988; Hutchinson, 1975; and Wetzel, 1975). Potential sources include wastewater treatment facilities, combined sewer overflow and stormwater discharges, septic systems and agricultural runoff. The States of Vermont and New York (1989) have submitted a detailed proposal for funds from Region I and II of the U.S. Environmental Protection Agency to conduct a diagnostic-feasibility study to measure phosphorus loads and develop, for the first time ever, a whole-lake phosphorus model. The proposal requests $900,000 for Vermont and $545,000

for New York. I urge your support of this proposal.

TOXIC WATER QUALITY PARAMETERS

New York has had to issue health advisories limiting the eating of lake trout longer than 25 inches, caught anywhere in Lake Champlain, to a maximum of one meal per month. Similarly, brown bullhead and American eel caught in Lake Champlain, from Cumberland Head to Valcour Island, are limited to a maximum of one meal per month. These advisories are part of an annual statewide advisory notification program and are based on studies (Sloan, et al. 1987) and policies (Horn, 1985) of the NYS Department of Environmental Conservation. The State of Vermont has issued similar advisories for the eating of lake trout from Lake Champlain. In this case, the contamination of fish flesh appears to be the result of PCB's. Unfortunately, the source of these contaminants has not been definitively determined. The Bureau of Monitoring and Assessment, NYS Department of Environmental Conservation, monitored two toxic parameter stations from 1982-1986 (NYSDEC, 1988a) on the Richlieu River at Rouses Point, NY, and on the Great Chazy River at Champlain, NY. These analyses

measured zinc and nickel on the Richelieu River and mercury at Champlain, NY. The zinc measure exceeded the NYSDEC limit for the protection of aquatic life (NYSDEC 1988a). The rotating intensive basin survey mentioned earlier (NYSDEC, 1989) has produced 153 data sheets for Lake Champlain that includes analyses of conventional parameters, heavy metals, volatile halogenated indicators, including some of the 209 low-level PCB cogeners. The study will cost about $60,000. The results of this study will be described in a report to be released later this year. Personal observations have noted declines in amphibian and reptile populations in the Little Chazy River. In response to this, the NYSDEC Bureau of Monitoring and Assessment plans to analyze samples from the Little Chazy River for agricultural pesticides.

The results and needs for these studies serve as indicators that alert us to possible public health concerns. They are not designed to provide comprehensive information on loadings or trends, and they do not determine the chemical fate of loadings. There is a need for more comprehensive information. For example, a detailed monitoring program that would analyze indigenous fish (shiners, darters, etc.) and selected sport fish

for a range of toxic parameters could be very informative. This study should be combined with analyses of waterworks intakes, bathing beaches, and selected additional sites. Such a comprehensive study would cost $500,000 and should be followed by a more selective monitoring program to track the effect of any remedial actions. Researchers in the university sector would follow such a study with applications for funding studies of fate and and transport of selected toxic chemical species.

To determine trends of toxic loading from the 1950's to the present, there is need to conduct a core sampling program at selected industrial sites, including Rouses Point, Plattsburgh, Burlington, Ticonderoga and others. Cores should be cesium-dated and analyzed for PCB's, dioxins and heavy metals. Such a study would cost about $300,000, according to some of my colleagues and would provide the first information available on the trends of toxic loading at selected Lake Champlain sites.

Today limnologists realize that toxic loading can be greatly influenced by aerial deposition. It is important to consider establishing an aerial monitoring program at a few carefully selected and

potentially sensitive sites on Lake Champlain such as near the Four Brothers Islands. Analyses of PCB's, dioxins and heavy metals should be coordinated with studies of fish, water samples and cores. Such a study would cost $200,000 for a small number of stations over three years and is essential to understanding the toxic loading budget of Lake Champlain.

PROJECT STUDIES

Some of the more significant development project that have been proposed for the Lake Champlain region in recent years have resulted in studies of parts of Lake Champlain. For example, a marina proposal in Willsboro was responsible for analyzing two seasons of conventional parameter and heavy metals data for Willsboro Bay (Laible and Walker, 1988). Less work was done for a more intensive project near Plattsburgh (Bouchard Construction, Inc., 1985). A number of studies have been done in conjunction with the Burlington Wastewater Treatment Plant and in response to concerns for Burlington's water intake and beaches (Morgan and McIntosh, 1987). Perhaps the most comprehensive studies have related to the State of Vermont's proposal to build a fish hatchery on Lake

Champlain. A site at Kingland Bay caused a detailed analysis of potential phosphorus loadings and current modeling (Walker, et al., 1986 and Laible, 1986). Subsequently, the State of Vermont employed Aquatec, Inc., to conduct two sessions of conventional heavy metal and toxic parameter studies when the proposed fish hatchery site was moved to Gordon's Landing. This detailed study included current analysis and a temperature profile study (Starbuck, et. al., 1987, 1988a, and 1988b).

These studies, particularly those conducted by Aquatec, Inc., have added important knowledge to some specific parts of Lake Champlain. They are not, however, a substitute for the need for more comrehensive conventional parameter and toxic parameter studies I have described previously.

CONCLUSION

Lake Champlain is an incredibly important international resource. It plays a national role in the infrastructure of the United States that is of major importance to, not only New York and Vermont, but to entire the entire country beause it draws users from all over the eastern United States. It is also used extensively by Canadian visitors.

In general terms, its environmental health is "guardedly good." I say "guardedly good" because we do have indications of excessive phosphorus loading and we do have some indications of toxic concern. I also say "guardedly good" because our scientific understanding of the loading, transportation and chemical fate of conventional and toxic species in Lake Champlain is embryonic. To protect this resource we must understand it as scientists to the extent that modern science will allow. I do not urge that we study it "to death;" rather I urge that we significantly step up our research and monitoring so that our activities can continue on the lake intelligently.

This testimony specifically requests that the Subcommittee support the funding of the following studies:

1.	Phosphorus Diagnostic-Feasibility Study	$ 1.5 M
2.	Lake Champlain Toxic Parameter Study	0.6
3.	Toxic Trends Core Study	0.3
4.	Aerial-Toxic Monitoring Study	0.2
	TOTAL	$ 2.5 M

These studies are only a part of a much larger needs package that is partly outlined in the Framework for the Vermont-New York Workplan (Vermont and New York, 1988b). Please consider my suggestions as a compliment to the Workplan. However, they are preliminary because this quick review was prepared in response to a telephone call that took place only last Wednesday. Thank you for listening to my presentation.

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Testimony of The Adirondack Council on Water Quality and Issues of Importance to the Future of The Lake Champlain Basin

Presented before Senator Daniel P. Moynihan and
Senator James M. Jeffords

for the
Water Resources, Transportation and Infrastructure Subcommittee
of the U.S. Senate Environment and Public Works Committee

June 28, 1989
Clinton Community College - Plattsburgh, New York

For More Information
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Testimony of D.R. Plumley
The Adirondack Council

GOOD AFTERNOON. I'M DAN PLUMLEY, PARK SPECIALIST FOR THE ADIRONDACK COUNCIL, ON WHOSE BEHALF I OFFER THE FOLLOWING COMMENTS. THE ADIRONDACK COUNCIL IS A CITIZEN ADVOCACY GROUP WITH 12,500 MEMBERS DEDICATED TO PROTECTING THE CHARACTER OF THE ADIRONDACK PARK. WE ALSO REPRESENT THE ADIRONDACK CONSERVATION INTERESTS OF FOUR NATIONAL ORGANIZATIONS INCLUDING THE NATURAL RESOURCES DEFENSE COUNCIL, NATIONAL AUDUBON SOCIETY, WILDERNESS SOCIETY AND THE NATIONAL PARKS AND CONSERVATION ASSOCIATION, WITH A COMBINED MEMBERSHIP OF APPROXIMATELY ONE MILLION CITIZENS.

I WANT TO THANK SENATOR MOYNIHAN AND SENATOR JEFFORDS FOR HAVING THE FORESIGHT TO CONDUCT THIS HEARING ON ISSUES OF CONCERN TO LAKE CHAMPLAIN.

STRETCHING 132 MILES NORTH AND SOUTH, LAKE CHAMPLAIN FORMS MUCH OF THE EASTERN BOUNDARY OF THE SIX MILLION ACRE ADIRONDACK PARK AND THEREFORE IS OF CRITICAL CONCERN TO THE ADIRONDACK COUNCIL. STEEPED IN A COLORFUL PAST AND THE SITE OF NUMEROUS HISTORIC BATTLES, LAKE CHAMPLAIN IS AGAIN MAKING HISTORY. THIS PAST SPRING, THE LAKE CHAMPLAIN BASIN AND ADIRONDACK MASSIF WAS DESIGNATED AS A BIOSPHERE RESERVE THROUGH UNESCO'S MAN AND THE BIOSPHERE PROGRAM AND IS NOW THE 4TH LARGEST BIOSPHERE RESERVE IN THE WORLD.

ONE OF THE PRINCIPLE OBJECTIVES OF THE BIOSPHERE DESIGNATION IS TO ENHANCE COOPERATION AND COMMUNICATION BETWEEN RESOURCE MANAGERS AT ALL GOVERNMENTAL LEVELS. IN THAT SAME SPIRIT OF COOPERATION, NEW YORK, VERMONT AND THE PROVINCE OF QUEBEC HAVE SIGNED AN AGREEMENT WHICH ESTABLISHES A BASIS FOR INTER-STATE AND INTERNATIONAL MANAGEMENT OF LAKE CHAMPLAIN AND ITS WATERSHED.

AS STATED IN THAT AGREEMENT, MANY IMPORTANT CONCERNS HAVING POTENTIAL IMPACT ON THE BASIN HAVE BEEN IDENTIFIED AND NEED TO BE ADDRESSED. BECAUSE LAKE CHAMPLAIN IS UNIQUELY SITUATED BETWEEN TWO STATES AND CANADA, INNOVATIVE MANAGEMENT IS NECESSARY TO ENHANCE AND PRESERVE THE CHARACTER OF THE LAKE AND ITS SURROUNDINGS. TRUE COMMITMENT TO THIS AMBITIOUS TASK WILL REQUIRE FORMATION OF AN INTERSTATE/INTERAGENCY BODY WHICH MANAGES LAKE CHAMPLAIN AS A COMPLETE ECOSYSTEM.

THE SCALE OF THE PROBLEMS AND MANAGEMENT CHALLENGES PRESENTLY FACING LAKE CHAMPLAIN NECESSITATES AN INTEGRATED ECOSYSTEM APPROACH. FURTHERMORE, EACH CHALLENGE OR PROBLEM CANNOT BE ADDRESSED IN ISOLATION. MANY OF THE PROBLEMS ARE INTERRELATED AND WILL REQUIRE COMPREHENSIVE MANAGEMENT THAT IS CONSISTENT THROUGHOUT THE BASIN.

EXAMPLES OF PROBLEMS WHICH MUST BE ADDRESSED AT THIS LEVEL INCLUDE OVERDEVELOPMENT OF SENSITIVE SHORELINE AREAS, RAPID EXPANSION OF MARINAS AND RELATED FACILITIES, POINT AND NON-POINT SOURCE POLLUTION OF THE LAKE AND ITS TRIBUTARIES, AND BASIN-WIDE LOADING OF TOXINS AND ACIDS FROM AIRBORNE EMISSIONS.

RESOLUTION OF THESE PROBLEMS TRANSCENDS THE CAPABILITIES OF NEW YORK AND VERMONT ALONE, AND REQUIRES PARTICIPATION AT THE NATIONAL LEVEL. SUCH PARTICIPATION SHOULD INCLUDE:

1. REAUTHORIZATION OF A STRONG CLEAN AIR ACT THIS YEAR.
2. IMPLEMENTATION OF A COMPREHENSIVE BASIN-WIDE RESEARCH PROGRAM.
3. PROTECTION OF CRITICAL HABITATS AND OPEN-SPACE RESOURCES THROUGH LAND USE PLANNING MECHANISMS AND PUBLIC ACQUISITION OF FEE TITLE AND CONSERVATION EASEMENTS.
4. ALLOCATION OF FEDERAL FUNDS TO ASSIST IN THESE ENDEAVORS.

THANK YOU VERY MUCH FOR ALLOWING ME AN OPPORTUNITY TO TAKE PART IN THIS HEARING. I WOULD BE HAPPY TO ANSWER ANY QUESTIONS YOU MAY HAVE.

WAYNE HAMNER BYRNE
46 CUMBERLAND AVENUE
PLATTSBURGH, NEW YORK 12901

June 28, 1989

Senator Patrick J. Moynihan
of the State of New York

Senator James Jeffords
of the State of Vermont

Dear Senators:

Thank you for coming to Burlington, Vermont and Plattsburgh, New York for the purpose of hearing the concern of our citizens of the Lake Champlain Valley relative to the environmental issues of the 2600 square mile Lake Champlain basin - particularly the factors affecting the quality of its waters, natural habitats of its plants, wildlife, birds and fishes sharing this area with our people. It is imperative we amplify steps already underway between the governments of New York, and the Province of Quebec for this international treasure.

As you know, Governor Cuomo, Governor Kunin of New York and Vermont, respectively along with Quebec Premier Bourassa signed a MEMORANDUM OF UNDERSTANDING on August 23, 1988 to establish a pattern of "Environmental Understanding" on the management of Lake Champlain.

Appearing before you today, I wish to suggest the federal government can materially help this process along in these manners:

1. Provide scientific and research data and cooperative personnel to supplement activities defined in " The Framework for the Vermont-New York Workplan on Lake Champlain" dated August 1988 - a supplement to the "Memorandum" referred to above.
2. Provide other data from the U.S. and Canada to develop an up-to-date base from wich valuable decisions affecting quality environmental values of the future may be based for this region.
3. Provide supplemental funding for at least a ten-year basis to supplement the MEMORANDUM already agreed to in spirit; objectives for the first five years are already outlined. How much? Since Lake Champlain is international in our concerns, I would suggest for the first five years at least $500,000.00 - then a review of progress - then, when substantiated, a million dollars for the next five Years.

As Chairperson of the New York state Citizens' Advisory Committee whose function it is to advise the Steering Committeethat is to implement to recommendations coming to it, I strongly urge yourserious consideration of helping our joint citizen-state-province effort to

WAYNE HAMNER BYRNE
46 CUMBERLAND AVENUE
PLATTSBURGH, NEW YORK 12901

contain current challenges to the quality of the Lake and to make environmental changes to current trends that depreciate the quality of the environmental future we aspire for this watershed in th decades ahead. It was not an idle thought international planners had when they recently designated this region as an international quality area - a world Biomass (Biosphere) Reserve. The least we can collective do is to work hard cooperative at all levels of society that we are equal to the challenge and the opportunity.

Thank you sincerely,

Wayne H. Byrne

Wayne H. Byrne
Chairperson New York Citizens'
Advisory Committee

CHRIS ORTLOFF
118th Assembly District
Clinton and Franklin Counties

THE ASSEMBLY
STATE OF NEW YORK
ALBANY

RANKING MINORITY MEMBER
Committee on Energy
COMMITTEES
Environmental Conservation
Corporations, Authorities & Commissions
Legislative Commission on
Science and Technology

June 28, 1989

Senator Daniel Patrick Moyanihan
Senator James Jeffords

RE: Senate Water Resources, Transportation, and Infrastructure Sub-Committee Field Hearing on water quality and other issues affecting Lake Champlain.

Dear Sirs:

I regret that I am not able to attend this important hearing, but my duties in Albany demand my presence. I would, however, like to have my comments recorded.

Lake Champlain has long been recognized as the centerpiece of New York State's North Country. One hundred and eight miles in length, it distinguishes itself as a source of livelihood, a haven for wildlife, a hub of tourism, and a symbol of inter-state cooperation.

Each of these roles exacts a high toll on the Lake. Increased use by visitors attracted to its crystal waters threatens overcrowding and increased pollution from pleasure boats. Industry must remain watchful of the quality of water they discharge and leach into the Lake, as also must those who live on its shores. And government at all levels has a responsibility to monitor and, in some cases, regulate human activities which adversely impact long-term water quality.

Lake Champlain is a key element in the lives of North Country citizens and wildlife. It is possible for both to thrive, but only if the Lake retains its splendor. This is a challenge which can not be answered without the close cooperation of New York, Vermont, and the federal government: I speak specifically of the important role the U.S. Fish and Wildlife Service will play as a contract agent in out forthcoming sea lamprey control program.

This challenge must be met with innovative ideas and hard work. It is a challenge which must be answered with success.

Sincerely yours,

CHRIS ORTLOFF
Member of Assembly

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PUBLIC STATEMENT REGARDING PROPOSED SEA LAMPREY CONTROL PROGRAM FOR LAKE CHAMPLAIN AND ITS TRIBUTARIES

PRESENTED BY: AMY WHITEHEAD
EXECUTIVE DIRECTOR, PLATTSBURGH AND CLINTON COUNTY CHAMBER OF COMMERCE
MEMBER, ALLIANCE OF LAKE CHAMPLAIN CHAMBERS OF COMMERCE

June 28, 1989
PLATTSBURGH, NEW YORK

I am Amy Whitehead, the Executive Director of the Plattsburgh and Clinton County Chamber of Commerce and a member of the Alliance of Lake Champlain Chambers of Commerce. The Alliance of Lake Champlain Chambers of Commerce includes the seven chambers of commerce in the Lake Champlain region. These chambers include the Lake Champlain RegionalChamber of Commerce, the Plattsburgh and Clinton Ccunty Chamber of Commerce, Westport, New York Chamber of Commerce, Addison County, Vermont, Chamber of Commerce, Northern Tier Chamber of Commerce, St. Albans Chamber of Commerce and Ticonderoga Chamber of Commerce. Combined, these Chambers represent over 3,800 business members who service nearly a quarter of a million customers in the Lake Champlain basin.

The philosophy of the Alliance of Lake Champlain Chambers of Commerce is straightforward: to support and promote the general aims and purposes of its member chambers as they impact on matters affecting Lake Champlain.

We are encouraged at your interest in reviewing the point pollution situation in Lake Champlain and are pleased to see federal attention given to our greatest resource. We are astutely aware of the importance of the lake quality on the success and survival of many of our member businesses. But today, there is even a graver problem threatening Lake Champlain.

A problem that each of the seven member chambers of commerce board of directors has denounced, a problem that the 3,800 member businesses denounce and a problem that will effect the quarter of a million customers in the Lake Champlain region.

The problem? The lamprey eel.

The lamprey eel has plagued Lake Champlain for well over a decade. . .yet the lamprecide treatment has not yet been applied.

Numerous studies have been conducted on the Lake Champlain lamprey eel problem - - all of them suggesting that the increasing population of the sea lamprey in Lake Champlain has seriously damaged the fish population of the lake . . .yet the lamprecide has not yet been applied.

The lamprey eel problem has led to growing public concern and the renewed commitment between New York State, Vermont, and Quebec Canada to pursue a sea lamprey control program. . .yet the lamprecide treatment has not yet been applied.

The lamprey eel problem has led to continued economic hardships of tourist-related businesses who depend on Lake Champlain for their survival. . .yet the lamprecide treatment has not yet been applied.

The lamprey eel problem has gained increased public awareness -- to the extent that in a recent survey, the lamprey eel was the number one concern of the 80,000 residents of Clinton County, New York. . .yet the lamprecide treatment has not yet been applied.

I am here today to let you know this issue will not fade away.

I am here today to challenge you, our US Senators and all elected officials in Vermont and New York to solve this problem. The solution has been proven successful time and time again in Lakes Michigan, Superior, Erie and Ontario and the Finger Lakes of New York. These lakes have been successfully treated and restocked

and are a model to the success of the lamprecide treatment program. To postpone the lamprecide treatment any longer may mean the total devastation of Lake Champlain's fish population -- and the businesses who depend on the lake for survival.

While we are encouraged by recent announcements about the lamprecide treatments progress, we will not be quiet or fully satisfied until the lamprecide treatment has been applied. The Alliance of Lake Champlain Chambers of Commerce challenges all elected officials to a lamprecide treatment by the Fall of 1990. Our seven chambers support this time frame, our 3,800 member businesses support this time frame and a coalition of New York and Vermont sporting and boat associations support this time frame.

Senators, the issue of point pollution is of vital importance to the health andwell-being of the Lake Champlain ecosystem. . .however, the immediate threat of the sea lamprey which is destroying the fish of Lake Champlain must be a first priority. Put simply, if the lamprecide treatment is not applied soon. . .this entire conversation on the impact of point pollution on the fish in Lake Champlain may be fruitless. . .because there may be no fish left.

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